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**PROSPECTUSES ON APPLICATION AS ABOVE.**

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**Major-General ROBERT CRAUFURD.**

*(Commander of the Light Division in the Peninsular War).*

THE JOURNAL
OF THE
ROYAL UNITED SERVICE INSTITUTION.

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# MAJOR-GENERAL ROBERT CRAUFURD.

(*Killed at CIUDAD RODRIGO, 1812.*)

ROBERT CRAUFURD, the famous commander of the Light Division in the Peninsula, was the third son[1] of Sir Alexander Craufurd, first baronet, of Newark, Ayrshire, and was born on the 5th May, 1764; his mother was the daughter of James Crockatt, of Luxborough, in Essex. Nothing is known of his education and boyhood beyond the fact that he gave early evidence of having inherited the violent temper of his father, and a good deal of the constitutional pugnacity and disregard for conventional propriety which characterised some of his ancestors.

He entered the Army on 10th April, 1780,[2] as an ensign in the 65th Foot, he being then fifteen years of age; but he never joined that regiment, and was transferred on the 18th April to the 26th Foot. Within two months[3] he was promoted to a lieutenancy in the 98th Foot,[4] then in course of formation, but was transferred back to the 26th Foot on the 7th March, 1781. In every biographical notice which has yet appeared of Craufurd he is credited with having served for some four years in the 25th Foot; but he never had any connection whatever with that regiment. On the 11th December, 1782, he was promoted to a company in the 92nd Foot,[5] from which, on the 22nd March, 1783, he was transferred to the half-pay of the 101st Foot.[6] For the next four years he remained on half-pay, and spent most of his time completing his education abroad. He attended reviews at Potsdam, and with his brother Charles was permitted by the king, Frederick the Great, to assist at the manœuvres of the Prussian troops, which then attracted represen-

[1] The eldest son was Sir James Craufurd, second baronet, British Resident at Hamburg, and afterwards Minister Plenipotentiary at Copenhagen; the second son was Lieut.-General Sir Charles Gregan Craufurd, G.C.B.

[2] Not in 1779, as is stated in the "Dictionary of National Biography," Cole's "Generals of the Peninsular War," and the Rev. A. H. Craufurd's Life of the General.—R. H.

[3] On 2nd June, 1780.

[4] The 98th Foot was raised in 1780, and was employed in India. The regiment was on board the fleet and engaged during Sir Edward Hughes' action with the French, under Suffren, in 1782, and in the following year was included in the disastrous surrender of General Matthews' army at Bednore. It was disbanded in 1783.—R. H.

[5] Raised in 1778, and disbanded in 1783.

[6] Raised in 1780, and disbanded in 1783.

tatives from every Army in Europe. He visited the principal theatres of war on the Continent, devoted his time to studying the military profession, and acquired a knowledge of military tactics and history, such as was exceedingly rare amongst officers of his age in the British Army. He had learned German thoroughly, and, in conjunction with his brother, published on his return home in 1787 a translation of Tielke's tactical works.[1]

Captain Craufurd was gazetted from half-pay to the 33rd Regiment on 6th October, 1787, but was transferred to the newly-raised 75th Highlanders[2] on 1st November[3] following. This fine regiment, composed entirely of Highlanders, was embodied at Stirling in June, 1788, marched into England, and embarked for India, where it arrived at the latter part of the year. During the first eighteen months it was subjected to a very severe system of discipline by Captain Craufurd, who was in temporary command, and who had entered on his duties with great zeal and energy. Although a Scotsman, he showed either a great want of discrimination between the feelings and positions of the men of a Highland regiment of the last century and those of the class found in ordinary marching regiments, or a serious lack of feeling and sympathy. The system which he introduced had been formed on the Prussian model, in which fear was the great principle of action, and feelings and sentiment were paid little heed to. Such a system readily lent itself to young Craufurd's temperament, but the result on the regiment was most unsatisfactory.[4] He was feared, certainly, but much disliked by the men. When the commanding officer returned, a more suitable system was introduced, and the regiment went honourably through an eventful course of Indian service. Craufurd saw his first active service with the 75th, under Hartley, in Central India in 1790, and under Abercromby and Lord Cornwallis in the campaign against Tippoo Sahib in 1791-2, including the siege of Seringapatam. He did good service in this campaign, and thoroughly established his reputation as a capable regimental officer. He went on half-pay in 1794 and returned to England.

In 1795 he was permitted to accompany his brother, Lieut.-Colonel Charles G. Craufurd, who was sent on a special mission to the headquarters of the Austrian Army; and in this capacity was present at several of the most important battles and sieges which took place in Italy and Germany in the campaigns of 1795, 1796, and 1797. His brother having been severely wounded at Amberg in August 1796, he succeeded him in the superintendence of the mission, and is said[5] to have acquired much

[1] "An account of the war between the Prussians, Austrians, and Russians from 1756 to 1763; and a treatise on the Military Act. Translated from the German original of J. G. Tielke, by Captain C. Craufurd, Queen's Dragoon Guards, and Captain R. Craufurd, h.p., 101st Foot. 2 Vols., London, 1787-88." There is a copy in the library of the R.U.S. Institution.—R. H.

[2] Now the 1st Bn. Gordon Highlanders.

[3] All the accounts of General Craufurd's life, including the "Dictionary of National Biography," credit him with having joined the 75th in 1783, four years before the regiment was raised.—R. H.

[4] Major-General David Stewart's "History of the Highlanders," published in 1822.

[5] "General Craufurd and his Light Division," by the Rev. A. H. Craufurd, p. 7.

reputation in carrying it out. He returned to England at the end of 1797, and was promoted to Lieut.-Colonel in the 60th Foot on the 30th December, 1797.[1] Notwithstanding his ability and his interest, he was close upon thirty-four years of age before he attained this rank, and he seems to have been very disappointed at his career so far. He was appointed Deputy-Qr.-Mr.-General in Ireland on the 16th February, 1798, and was actively employed against the rebels and the French during the rebellion of that year; his services being warmly recognised by Lord Cornwallis and Lord Lake.

Craufurd was impatient for further active service, and in 1799 acted as British Military Commissioner with the Austrian Army in Switzerland during Suwarrow's famous campaign, to whose headquarters he was attached. He afterwards served on the staff in Holland in 1799, where he displayed his usual energy and activity. Upon the conclusion of this disastrous campaign, he resumed his duties in the Quarter-Master-General's department in Ireland. In the meantime, he married on the 7th February, 1800, Mary Frances, daughter of Henry Holland, Esq., of Hans Place, Chelsea, and had, through the interest of his brother Charles, who had married the Dowager Duchess of Newcastle, to whose family the borough belonged, been elected M.P. for East Retford.

Craufurd at this time was gloomy and dissatisfied with his prospects, no doubt with good cause. He was an officer of marked ability, of which fact he was perfectly conscious. His knowledge of his profession was equalled by few officers in the Army. He had considerable experience, and had always displayed on service extraordinary zeal, firmness, and intrepidity; but he was very far from popular with his brother officers, and had many enemies, which may serve to account for his being, at forty years of age, still a lieutenant-colonel. About this time he contemplated making an offer to raise a foreign regiment for service in the East Indies, but he relinquished the idea on being appointed, on the 26th September, 1801, Adjutant-General in the East Indies. On the 11th February following he was appointed second Lieutenant-Colonel of the 86th (Shropshire) Regiment,[2] from which on the 1st March, 1803, he exchanged to the half-pay of the 60th Foot, and resumed his Parliamentary duties. On the 30th October, 1805, at the age of forty-one, he was promoted to the rank of Colonel in the Army.

Craufurd's luck was now about to turn. He had, since his entry into Parliament, established a close friendship with Mr. Windham, then Secretary of State for the Colonies and War, who nominated him at the end of 1806 to the command of a special expedition; and he was gazetted a Brigadier-General for particular service on the 16th September, 1806.

The force placed under his command consisted of two companies of Royal Artillery, two squadrons of cavalry, four regiments of infantry, and four companies of the 95th (Rifle Corps),[3] in all about 4,200 men.

[1] He was transferred to the 60th Foot from Hompesch's Regiment on the 23rd January, 1798; but I can find no trace in the "London Gazette" of his appointment to Hompesch's Regiment, which he could never have joined.—R. H.

[2] Now the 2nd Bn. Royal Irish Rifles.

[3] Now the Rifle Brigade.

originally destined, according to Alison, for the conquest of Chili. The unprecedented circumstance of a Colonel, and nearly the junior of his rank, being appointed to a Lieutenant-General's command, excited much opposition, and loud murmurs on the part of the unemployed officers of superior rank. Windham stood firm to the appointment; but when Craufurd's force was sent on without landing from the Cape of Good Hope to South America, the chief command was vested in the ill-fated General Whitelocke. In the expedition of 1807, Craufurd served, under Whitelocke, in command of a light brigade composed of the 95th Rifle Corps, and the light companies of the other regiments. It is unnecessary to refer at any length to the circumstances connected with the second attack on Buenos Ayres, which had been won and lost in the previous year. With his brigade Craufurd proved himself a capable leader of light troops; he led the advance, and in the attack upon the city, on the 4th July, successfully accomplished the task before him, and showed great bravery. He charged the Spaniards at the head of his light troops, drove them back in confusion, and captured nine guns and a howitzer; and had he been supported by the main body, it is more than probable that he would have carried the town. The unfortunate issue of the Buenos Ayres affair is matter of history. 72 officers and 1,088 men were killed, wounded, or missing; 120 officers and 1,500 rank and file were taken prisoners; and 1,500 stands of arms fell into the hands of the enemy. Though Craufurd's part in the affair was creditable to him, and he was favourably mentioned in General Whitelocke's despatch of 10th July, he never got over the blow to his pride at being involved in such an unfortunate expedition. It embittered his mind to the very end of his career, and much increased his constitutional tendency to melancholy brooding. His contempt for his wretched chief was unbounded, and he is said to have told his men to shoot the traitor if they met him in the streets.

In October, 1808, Brigadier Craufurd sailed with Sir David Baird for the Peninsula in command of the light brigade of the corps which that general was ordered to take to the assistance of Sir John Moore. His corps joined Sir John Moore's army at Mayorga on 20th December, and Craufurd's brigade was perpetually engaged during the retreat, especially at Castro Gonzalo,[1] from the 28th to the 31st December, when his

[1] Here he performed a bold but successful feat. He was posted at the bridge over the Esla with orders to check the advance of the enemy as long as possible; and, when the desired time was gained, to destroy the bridge and bring off his brigade. During the night of the 28th December, and amidst torrents of rain and snow, while the enemy were gathering closely around him, he contrived to destroy two arches of the bridge (an ancient edifice of solid masonry) and to blow up the connecting buttress. Napier says:—"The troops then descended the heights on the left bank by single file, over planks laid across the broken arches, gained the other side without loss; an instance of singular good fortune, for the night was dark and tempestuous: the river, rising rapidly with a roaring noise, was threatening to burst over the planks, and the enemy was close at hand. To have resisted an attack in such an awkward situation would have been impossible, but, happily, the retreat of the troops was undiscovered, and the mine being sprung with good effect, Craufurd marched to Benevente, where the cavalry and reserve still remained."

brigade was ordered to leave the main army and march to Vigo, where it embarked for England. Craufurd's command of the brigade during the retreat was masterly, but marked with terrible, and what now appears as cruel and unnecessary, severity under the dreadful and harassing circumstances of that retreat. With all his harshness, however, he is believed to have had a real concern for the men; and it is questionable whether any man but one formed of stuff like Robert Craufurd could have saved the brigade from perishing altogether.

On 25th May, 1809, he again embarked for the Peninsula in command of the Light Brigade, consisting of three splendid regiments—the 43rd Light Infantry, 52nd Light Infantry, and the 1st Battalion 95th Rifles. These battalions formed the pith of the celebrated "Light Division." They had been trained in the camp at Shorncliffe, under the eye of Sir John Moore. In all that constitutes the character of the soldier they were perfect. In every narrative of war they may be quoted as models; and it may be said, without exaggeration, that they never met their match in a fair field when opposed to anything like equal numbers. While memorials of the war in the Peninsula exist, the name of Robert Craufurd will be for ever identified with this noble body of troops. Their advance to join Sir Arthur Wellesley, if correctly described by Napier, is an instance of practical discipline and endurance to which it would be difficult to produce a parallel. They were hutted, after a march of twenty miles, at Malpartida, and had only been allowed a few hours to rest and cook their rations, when they met with stragglers who reported that the British Army was defeated, and the enemy close at hand. Craufurd at once determined to make a forced march to the front. It is said by Napier that in twenty-six hours Craufurd reached the army, moving in perfect order as if on parade, having during that time passed over sixty-two English miles under the burning rays of a Spanish sun in July, each man carrying from 50 to 60 lbs. weight; and of the entire division only seventeen stragglers were left behind.[1]

From this period the career of the "Light Division"[2] and its leader

[1] The late Major-General Sir G. Colley, who fell in the Boer war, threw the gravest doubts on this celebrated march, so familiar to students of Napier, and so frequently quoted to show what British troops can do. There is also an inconsistency in Napier's account, who was not himself present. The distance from Malpartida de Plasentia to Talavera is 62 miles; consequently the actual distance marched would be 82 miles, a still more wonderful feat. Colley's account of the march, based on the very best information, is that "The Light Brigade reached Malpartida on the 25th, three days before the battle. On the 26th and 27th they made two short marches, marching early in consequence of the heat of the weather. On the 28th they had completed their day's march early when they heard of the battle. Craufurd waited till the heat of the day was past, broke up in the evening, gave his men a halt during the night, and reached the battle-field about sunrise the next morning, the actual distance traversed from the halting place on the night of the 27th being 40 miles. Finding the battle over, the brigade halted and rested, and in the afternoon crossed the battle-field and took up the line of outposts."

[2] In Wellington's General Order of 22nd February, 1810, the Brigade was to be in future known as the "Light Division."

was one of exceptional brilliancy; Craufurd was an unequalled commander of light troops, and no finer commander of the outposts has ever been known; his officers and men feared him, but trusted him implicitly, and he remained continually in advance of the Allied Army in the very face of the overpowering numbers of the French. His operations on the Coa in July, 1810, to which Napier devotes a most interesting chapter[1] have been severely criticised, and there can be no doubt that his headstrong ambition and vanity, and direct disobedience of orders, placed him in a situation of extreme danger, from which he only extricated himself by the extraordinary discipline and heroism of his officers and men. Lord Wellington was highly vexed at Craufurd's behaviour on this occasion. It is generally said that Craufurd cared little for Wellington's censure, but this is an entire mistake; he felt it very deeply, although he treated the affair lightly in a short despatch to his superior. Wellington was well aware of Craufurd's merits, and knew too well how little he could spare his brilliant subordinate to do more than censure him.

During the retreat upon Torres Vedras the Light Division covered the retreating army, a task of much difficulty. At the battle of Busaco, fought on the 27th September, 1810, Craufurd displayed considerable skill in addition to the impetuous valour by which he was always characterised. His division drove back and charged down the corps of Ney, which had formed a lodgment upon the British line of heights. He was very favourably mentioned in Wellington's despatch of the 30th September, 1810, and received the general officers' gold medal.

When the army went into winter quarters in the lines of Torres Vedras, Craufurd went home to England on leave, with Wellington's consent, but not with his approval, for he feared that Craufurd's absence would cause his supersession. Directly he arrived in England he published in the *Times* a defence of his operations of the Coa, which Masséna had interpreted into a victory for himself. During his absence the Light Division had been commanded by Sir William Erskine with decided incapacity, and Wellington was anxious for Craufurd's return. He had some difficulty in saving Craufurd from supersession, there were so many generals senior to him; but on his return in April, 1811, Wellington wrote, "You will find your division in its old quarters, and the sooner you can come up to them the better." His return to the division on the very morning of the battle of Fuentes d'Onoro on the 5th May, 1811, was greeted with ringing cheers by his soldiers, who, whether they liked him or not, were full believers in his capacity and bravery. In that battle the Light Division played a distinguished part, and covered the extraordinary change of position which Lord Wellington found it necessary to make in the very face of the enemy. Craufurd was favourably mentioned in Lord Wellington's despatch of the 8th May, 1811, and was promoted to the rank of Major-General on the 4th June, he being then in his forty-eighth year.

At Guinaldo, Craufurd was a day late in his march of concentration, and was sharply reprimanded by Wellington, who, however, valued him

[1] "Peninsular War," Chapter IV., Book II.

too highly to be long annoyed. Craufurd said he knew he could defend his position. Lord Wellington, when he came back, only said, "I am glad to see you safe, Craufurd." The latter replied, "Oh! I was in no danger, I assure your Lordship." "But I was from your conduct," said Wellington. Upon which Craufurd observed aside, "He is d——d crusty to-day."[1]

Craufurd's last appearance on the stirring scene was now approaching. During the remainder of 1811 he and his division were actively employed, but no other general action took place under the immediate command of Wellington. The siege of Ciudad Rodrigo commenced early in 1812, the trenches were opened on the 8th January, and on the same night an important redoubt was captured by select companies of the Light Division. On the 14th the batteries opened, and on the 19th two breaches were reported practicable. Lord Wellington examined them in person, and gave orders for the town to be stormed that evening. The larger breach was to be assailed by the third, and the lesser by the Light Division. Craufurd's last address to his division, a moment before they moved on, was short and clear, and delivered in more than his usual decisive manner:—"Soldiers!" said he, "the eyes of your country are upon you. Be steady—be cool—be firm in the assault. The town must be yours this night. Once masters of the wall, let your first duty be to clear the ramparts, and in doing this keep well together." At seven in the evening, the town clock struck, the signal was given by a rocket, and the columns rushed forward. The garrison were prepared for a desperate resistance: a mine was sprung in the principal breach, by which many brave men perished; but in less than an hour the place was won. The stormers of the Light Division consisted of three hundred volunteers led by Major George Napier,[2] with a forlorn hope under Lieutenant Gurwood. Craufurd accompanied them. The Light Division, as usual, displayed surpassing heroism, and its trusted leader sacrificed his life from his ardent desire that the enterprise should succeed. He fell while giving orders at the head of his column, struck by a musket ball which passed through his arm, broke through the ribs, passed through part of the lungs, and lodged in or at the spine. For a moment he struggled, as it were, with the weakness of humanity, and strove to head his brave followers as he had hitherto done, but the effort was fruitless. He fell back into the arms of one of his soldiers and was carried to the rear. He lingered in great agony until the 24th January, 1812, when he died, to the last thinking of his wife and his division. He was buried in the breach, his funeral being attended by Lord Wellington, all the staff, and the Light Division. An eye-witness[3] says that among the six rugged veterans who had borne the coffin there was not a dry eye, and that even of the privates

[1] Hooper's "Life of Wellington," Cole's "Peninsular Generals," Griffith's "Wellington Memorial," and other works incorrectly connect this anecdote with the meeting between Wellington and Craufurd after the affair of the Coa.

[2] Afterwards Lieut.-General Sir George Napier.

[3] An account of the funeral published in the "Gem" Magazine for 1829, by the Rev. C. R. Gleig, afterwards Chaplain-General.

who looked on there were few who manifested not signs of sorrow such as men are accustomed to exhibit only when they lose a parent or child. His conduct was eulogised in Lord Wellington's despatches of the 20th and 29th January, and his glorious death was recognised by votes of both Houses of Parliament, while a monument was erected to him in St. Paul's Cathedral at the public expense.

General Craufurd was a remarkable man. In person he was below the middle height, with a hard and sullen expression. He was hasty, and had extraordinary and violent bursts of passion, which were to a great extent the cause of his extreme unpopularity. He was also vain and ambitious. He was harsh and rigid in command, and a very severe disciplinarian, his conduct occasionally verging on brutality.[1] He was prone to disobedience himself, though he exacted entire obedience from others. Yet, withal, he had occasional bursts of good and generous feelings; and though he appeared outwardly proud, his home life was above reproach. That he was a very able officer is undeniable. He was brave, active, energetic, possessed of uncommon strength, and spared himself no more than his men. As a general commanding a division of light troops he was unequalled, and his knowledge of outpost work was never exceeded by any British general. Indeed, it is doubtful if there were many in any other Service who knew more of that particular branch of the profession than he did. "He had, by long experience, unwearied zeal, and constant activity, united to practice, founded a system of discipline and marching which arrived at such perfection that he could calculate to the minute the time his whole division, baggage, commissariat, etc., would take to arrive at any given point, no matter how many days' march. Every officer and soldier knew his duty in every particular, and also knew he must perform it."[2] His standing orders of the Light Division were justly famous, and have had a great effect on the Army. For fully twenty years after the Peninsular War every officer of the Rifle Brigade was required to learn and know these orders. They were republished in 1844 for the use of the Army serving in Ireland; again in 1880 they were republished for the use of the Curragh Brigade; and even now his celebrated orders as to marches are valued highly. He has left his mark on the Army, and will be known to posterity as "the famous commander of the Light Division in the Peninsula."

R. HOLDEN.

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[1] One evening, during the retreat to Corunna, when there was some grumbling among the men, Craufurd, who was also in a bad mood, seized the rifle out of one of the men's hands and felled him to the ground with the butt-end, and then threatened him with a court-martial. He then discovered he had struck the wrong man.

[2] General Sir George Napier.

# ARMY RE-ORGANISATION;
## WITH SPECIAL REFERENCE TO THE INFANTRY OF THE LINE AND MILITIA.

*By Colonel JAMES D. LEGARD, p.s.c., Commanding Yorkshire Artillery Militia and East Yorkshire Infantry Volunteer Brigade.*

Wednesday, February 9th, 1898.

General The Right Hon. Lord CHELMSFORD, G.C.B., in the Chair.

The CHAIRMAN :—It is my pleasing duty to introduce to you Colonel Legard, who has kindly consented to give us, this afternoon, a lecture upon what I may almost style the burning question of the day—certainly, so far as the military members of the Service are concerned. It appears that the civil community at large are also taking a very intelligent interest in this question. Colonel Legard has passed the Staff College, he has been appointed to the command of a Brigade of Volunteers in the East Riding of Yorkshire, and he is also in command of an Artillery Militia Regiment ; therefore, I am sure we shall feel that whatever he has to say upon this important subject will have been well considered. As I have read it myself, I cannot help adding that I think his views have been very clearly and explicitly set down in the lecture which we shall now listen to.

### LECTURE.

THE military requirements of our Empire appear to be twofold: we must have absolute security at home—security for our homes, our ports, and food supply; we must also be able to strike quickly and powerfully at any foe who may threaten our material interests abroad.

We need not include in our considerations a land war in Europe. If we had the need or desire to undertake such a war, we have not, and cannot have, the means. Our land forces, as compared with those of any of the European Powers, are, and must remain, numerically contemptible. On the other hand, elsewhere than in Europe, our sea power should enable us to act on sea and land against even a combination of European Powers with a tolerable certainty of success.

To meet sudden, often unforeseen, but usually temporary emergencies, our military system should be elastic. It should be easily expanded when required, and as easily contracted when an emergency has passed away.

There are other considerations of a permanent character which must be kept in view. Under this head would fall the occupation of India or Colonies and coaling stations, and the discharge of other similar functions which cannot be left over until war has commenced or become imminent.

On this last consideration will depend the strength of our Standing Army in time of peace. It is not proposed to discuss in these pages what that strength should be, but rather to assume that this point has been settled, and to propose means by which the other earlier named requirements may be adequately met. An addition to our Standing Army, as foreshadowed by the Secretary of State for War, may or may not be necessary. It will be sufficient for our purpose to take our land forces as they stand now, and to propose an organisation equally suitable for the existing or for an increased establishment.

To attain absolute security at home, the numbers and quality of a possible invader's troops must be considered. To discuss all the arguments which may be brought forward as to the possible strength of an invading Army would be beside the present purpose. There are, however, good grounds for believing that no nation would attempt a serious invasion of England with less than 150,000 infantry; and it is doubtful if an enemy would be able to land a much larger force than this in any period of time that would be at his disposal. The quality of the invader's Army cannot safely be assumed to be inferior to that of the best Continental troops.

An officer of distinction, who has recently had opportunities of seeing the Armies of France and Germany in the field, has stated[1] that he does not consider our Auxiliary forces, constituted and organised as they are, capable of meeting the troops of either country with a fair chance of success. It will, therefore, be my endeavour to suggest, in connection with the re-organisation now proposed, a means by which a portion at least of our Auxiliary forces may be brought up to a higher standard of efficiency.

Some writers appear to assume that our Navy renders any invasion impossible. If that be so, we require no Home Defence Army at all. The existence of such an Army implies the belief of those responsible for our defence that invasion is not impossible. We need not therefore further discuss this point. But even if we assume that our Navy *can* render an invasion impossible, is it wise to exact that duty of it? Such a course would, I imagine, tie a considerable proportion of our sea strength to the immediate neighbourhood of our shores and harbours. Surely it is preferable that our fleets should not be thus hampered, but should feel themselves free to attack the enemy wherever and whenever he appears most vulnerable, and protect our main lines of commerce. To secure this liberty to our Navy, it seems of paramount importance that our land forces should be equal to giving a good account of an invader who may have succeeded in crossing the Channel during the temporary absence of our fleet.

But a great war with a European Power, if not a remote contingency, is at all events an incident of infrequent occurrence. For once that we are engaged in a European war, we are probably engaged a dozen times in military operations on a small scale. Since the war with Russia, we

[1] Lecture given by Colonel E. T. Hutton, C.B., A.D.C., before the Aldershot Military Society, 7th December, 1897.

have engaged in expeditions in China, Burma, Abyssinia, Egypt, our Indian frontier, South and West Africa. As the Commander-in-Chief told us not long ago, one of the chief attractions of the British Army is that it is always at war. We have proportionately, if not actually, a much greater number of officers in our Army with war experience than any Army in the world. Small wars, therefore, form another eventuality for which our land forces must be prepared, and for which their organisation must fit them.

To sum up, then, the duties as required of our land forces are as follows :—

1. The occupation and defence of India, our Colonies, Egypt, and our coaling stations abroad.
2. Home defence, including therein over-sea operations against an enemy.
3. The occasional despatch of small expeditions to distant countries.

Nos. 1 and 3 impose serious limitations on our system of enlistment. It is admitted on all hands that for service outside these islands compulsory enlistment is impossible, and some form of voluntary service imperative. On the other hand, for service within the United Kingdom some form of compulsion, if necessary, would seem to be permissible.

We are told by the highest authorities that a foreign or Colonial Army, as separate and distinct from our Home Army, is, in the interests of discipline, undesirable.

The problem, then, is to provide a single Army which will meet the above requirements, subject to the limitations which they entail.

The proposal now submitted is broadly as follows :—

1. To adhere to voluntary enlistment with modified short service for foreign and colonial purposes.
2. To adopt a form of short service with or without compulsion, adaptable to home defence and foreign expeditions.
3. To relieve our Army stationed abroad by detachments only, and not by detachments and complete units, as is now the case.
4. Re-organisation and increased efficiency for the Militia.

It is proposed in this paper to deal with the infantry only. It is probable, however, that, with some modifications, the artillery might be similarly treated.

Taking our present normal organisation of an infantry territorial regiment, we have two Regular battalions, one abroad and one at home, a regimental depôt, and two Militia battalions. There are, however, considerable variations from this state of things. Not counting the Guards, we have 69 territorial regiments. Two of these (King's Royal Rifles and Rifle Brigade) have each four battalions of Regulars. The remaining 67 have two battalions each. There are thus 142 Regular battalions in all. Of these, 62 are at home, and 80 abroad. The Rifle Brigade has one battalion at home and three abroad. Eight regiments have both Regular battalions abroad.

Then, again, of these 69 territorial regiments:—

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3 | have | 4 | Militia | battalions | each, | or total .. | 12 |
| 8 | ,, | 3 | ,, | ,, | ,, | ,, .. | 24 |
| 33 | ,, | 2 | ,, | ,, | ,, | ,, .. | 66 |
| 25 | ,, | 1 | ,, | ,, | ,, | ,, .. | 25 |

Total, 69 territorial regiments with, in all, 127 Militia battalions.

Under the proposed re-organisation, every territorial regiment will have an equal number of Regular and Militia battalions. We shall want, therefore, 142 Militia battalions. To do this, we must redistribute some of the existing units, and raise fifteen additional Militia battalions.

The regimental depôts in their present form will disappear.

With the exception of the King's Royal Rifles and Rifle Brigade, each territorial regiment would be normally as follows:—

1st Battalion abroad on Establishment No. I.[1]
2nd ,, at home on ,, No. II.
3rd ,, at Regtl. Dist. Hd. Qrs. } on Establishment No. III.
4th ,, ,, ,, ,, } to include both battalions.

The Rifle regiments will remain as at present, each with—

2 battalions abroad on Establishment No. I.
2 ,, at home on Establishment No. II.
4 ,, at home on Establishment No. III. doubled.

Apart from uniformity of organisation, there seem to be good reasons for equalising the number of Militia battalions. With one exception, the Royal Fusiliers, all the regiments with three, and one with four, Militia battalions, are in Ireland, where the population is decreasing. On the other hand, the populous and increasing county of Lancaster has three territorial regiments with only one Militia battalion each. The populous centres of Cardiff, Halifax, Leicester, and Newcastle only produce one battalion each. The two Yorkshire regiments belonging to Pontefract, representing the Leeds and Sheffield districts, have also only one Militia battalion each. The Royal Highlanders, Perth, and the Gordon Highlanders, Aberdeen, might surely also be represented by more than one Militia battalion. Moreover, any system of compulsory enlistment must be based on population, and for this reason also some re-distribution of the existing Militia battalions would seem to be desirable. Equalisation of territorial battalions was contemplated under Lord Cardwell's scheme, the idea being that every 100,000 population should provide 1,000 soldiers.

### Enlistment and Terms of Service.

*India, the Colonies, and Egypt.*—Battalions abroad would be on Establishment No. I., and comprise non-commissioned officers and men enlisted for general service only. For these units the present so-called short-service system, with some modifications, would suffice. The first period of service in ordinary cases would be divided thus:—

Two years with the home battalion.
Six years abroad.
Four years in the 1st Class Army Reserve.

[1] The proposed establishments are given in Appendix I.

Inducements, however, should be given to encourage non-commissioned officers and the best soldiers to extend their service to twelve years, and then to pass into Section D 1st Class Army Reserve, with the guarantee of employment in civil life; a proportion of non-commissioned officers to be allowed to serve on for twenty-one years and pension; deferred pay to be given either in the form of increased daily pay, or divided into smaller sums and given as an annual Reserve bounty.

*Home Defence and Foreign Expeditions.*—The home battalion on Establishment No. II. would comprise a full complement of officers, and non-commissioned officers enlisted for general service.[1] This battalion would also contain all men enlisted for general service of less than two years' service. These men would receive a higher rate of daily pay.

For service with the home battalion, a proportion of men would be enlisted for home service and Reserve, with the same liability to service as the present 1st Class Army Reserve. These men would serve two years with the colours and ten years in the 1st Class Army Reserve. A proportion of them should be liable to be recalled to the colours, with their own consent, for small wars during the earlier portion of their Reserve service. During this period they would also be liable to be called up for annual training for a period of from twenty-one to fifty-six days with the home battalion. As an inducement to undertake this liability they should receive a daily rate of Reserve pay, and a bounty at the termination of their annual training, at the same rate as that of the Militia Reserve. The periods of Reserve service for these men might possibly be fixed at six years, with liability to be called up whenever wanted, and four years without such liability. These periods, however, would have to depend to some extent on the numbers who accepted this liability. Men who were discharged after two years' colour service, with liability to ordinary Reserve service only, would receive no Reserve pay, but should report themselves annually in their respective districts, and receive a bounty on so doing. They would not be called up for annual training.[2]

[1] "General service" here means liability to serve abroad when required with a battalion of the territorial regiment. All recruits should be enlisted for a territorial regiment, and no man should be compelled to serve in any other regiment without his consent.

[2] To make the proposed arrangements as to Reserve Service somewhat clearer they may be stated as follows:—

The 1st Class Army Reserve would be divided in sections—A, B, C, and D, as at present.

*Section A.*—As at present (empty).

*Section B.*—As at present. (Men from the battalions abroad) and transfers from Sec. C.

*Section C.*—As at present; but after two years' colour service only—liability to serve whenever wanted. Reserve pay and annual bounty; annual training; after five (or six) years in Section C to be transferred to Section B for remainder of engagement.

*Section D.*—As at present, with the addition of men discharged after two years' colour service and without liability to serve except in case of great emergency or imminent national danger.

At any time during his colour service, a soldier enlisted for home and Reserve service only should be allowed to volunteer for general service. Men are deterred at present from enlistment because they do not like to commit themselves to the certainty of a considerable number of years' service, and the strong probability of having to serve abroad, until they get an idea of what a soldier's life really is. A considerable number of men now enlist in the Militia, with the intention of joining the Army if they find the duties to their liking. A Militia recruit may at any time before receiving his bounty claim his discharge on the payment of £1. An Army recruit, on the other hand, is only allowed to claim his discharge within three months of his attestation, and then has to pay £10 for the privilege. After that period, discharge by purchase cannot be claimed as a right by a soldier, and is only granted as an indulgence. A Militiaman, on the other hand, may purchase his discharge at any time, the payment required not being more than £2 under any circumstances, but usually £1.

The recruit on joining the Army will then have the choice of several alternatives.

1. He may join for general service, with the prospect, if he is a good man with some education, of becoming a non-commissioned officer, serving for twenty-one years, and gaining a pension and drawing increased pay during the whole of his colour service.
2. He may enlist for general service, and after eight years join the *Army Reserve* for four years with Reserve pay.
3. He may enlist for home service for two years with ten years' *Reserve service, no* Reserve pay, and liability for service only in case of imminent national danger or great emergency.
4. He may enlist for home service for two years, with Reserve service and *liability to general* service at any time when wanted and to annual training, receiving Reserve pay and bounty for accepting this *liability*.

All officers and non-commissioned officers would be liable to general service, and should take their turn of *foreign service* according to *roster*. A period of foreign service would always, when possible, be succeeded by at least an equal period of home service.

*Home Defence Only*.—There remain the 3rd and 4th Battalions of the territorial regiment on Establishment No. III. For these the terms of service would be the same as those prescribed by the Militia Acts when the ballot was in force, viz. :—

Six months' preliminary drill.
Twenty-one to fifty-six days' annual training.
Five years' service, with option to re-engage for a further period of five years.

One-fourth of the establishment of these battalions would be enrolled as now for the Militia Reserve, and liable to general service under certain circumstances. It would, however, be desirable to vary the Reserve

Forces Act, 1882 (Sec. 12 (1) ), to some extent, to enable a proportion of these men to enrol themselves for general service at any time when required. They would thus be available to fill the ranks of the 2nd Battalion for small expeditions, and they should be granted an additional £1 bounty for so doing. I have little doubt that nearly all Militia Reservemen would accept these terms if they were offered. The Militia Reserve is very popular at present, and in my own regiment I have always more candidates for it than vacancies.

A certain proportion of officers on Army service and an ample number of non-commissioned officers on general service would be posted to the 3rd and 4th Battalions on Establishment No. III., and these battalions would, when not called up for training, perform the duties of the regimental depôt. The establishment of officers on Army service for these two battalions would be the same as intended for the depôts under Lord Cardwell's scheme. During the non-training period two companies from each of the 3rd and 4th Battalions would, in fact, form a 4-company depôt. When both these battalions were called up for training, or on mobilisation, the establishments would be completed in officers from the Reserve of Officers or officers now serving as Militia officers. Tables given in Appendix show the proposed establishments under all circumstances.

The effect of these arrangements would be as follows:—

1. The battalion abroad would be maintained at its effective strength by a constant supply of well-drilled and mature recruits. At least a moiety of officers and non-commissioned officers would have been some years with the battalion and have experience of foreign service. Anyone who has served in India must have observed the helplessness and inefficiency of a unit newly arrived in that country, and which a residence there of two or three years is necessary entirely to overcome. It is probable also that retaining a proportion of seasoned soldiers abroad for their first period of service would materially diminish the waste through invaliding which occurs under our present system. By the constant interchange of officers and non-commissioned officers with the home battalion the discipline and traditions of the regiment would be maintained. It was stated recently in the *Times* that the 1st Battalion Rifle Brigade was to return to England last January from Singapore and Penang, after an absence abroad of seventeen years. Probably the only portion of the battalion returning with it which accompanied it abroad in 1880 will be the mess plate! There seems to be practically no difference between a system which leaves units abroad permanently with constant reliefs by detachments and one which allows a battalion to remain abroad for seventeen years. Interchange of stations between India, Malta, Gibraltar, Egypt, and the Colonies would, of course, go on as at present, if, and when, thought desirable.

The objection to a foreign or Colonial Army appears to be based mainly on the experience of the old East India Company's troops at the time of the mutinies. The state of things then existing was, however, entirely different from what is here proposed. In the Company's service officers and men spent the whole of their service in India, and were

quite out of touch with the Home Army. Under the present scheme every officer and non-commissioned officer would spend at least half, and probably more than half, his colour service at home, and would be relieved at short periods (say four or five years). Every soldier would have spent the first two years of his service in the home battalion.

2. For foreign expeditions a battalion would be brought up to its war establishment by calling to its ranks general service reservists and the whole of, or volunteers from, the Militia Reserves of the 3rd and 4th Battalions.

On the departure of the 2nd Battalion the 3rd Battalion would be brought up to Establishment No. II. and receive all men of less than two years' service destined for the battalions abroad. The places of the Militia Reserve men of 3rd and 4th Battalions called out in permanent service would at once be filled as provided for in Reserve Forces Act.

3. For home defence the 2nd, 3rd, and 4th Battalions would be mobilised, and form a three-battalion Regiment, two or more such Regiments forming a Brigade.

The only case where some difficulty might arise would be when a 2nd Battalion is ordered abroad in time of peace and cannot be augmented from the Army or Militia Reserve. If hostilities were not anticipated the step would probably not be a matter of urgency, and would have been foreseen long enough to raise the establishment of general service men by additional recruiting. In any case, with a sufficiently elastic Reserve Forces Act, a portion of the Militia Reserves might accompany the unit, they being gradually withdrawn and their places taken by men enlisted for general service. There is little doubt, however, that for a short period of foreign service as many men as were wanted would be obtained by volunteers from the territorial battalions remaining at home. Some modifications of the Militia Act (Sec. 18 (1)) would, however, be necessary.

### Recruiting and the Ballot.

The question arises whether we should obtain the number of recruits we want under the proposed scheme by voluntary enlistment, and, if not, what is the alternative?

Taking the average of the last ten years (as shown in Army Returns, 1897), we require for India, the Colonies, and Egypt some 10,000 infantry recruits annually. As we now enlist about 20,000 line infantry recruits for general service annually, there is no doubt that we shall get 10,000 without difficulty, especially in view of an increased rate of pay and other advantages. Not only so, but we shall be able to dispense with "specials," and take further precautions with regard to the age of our recruits.

On the scale proposed in Establishment No. II. each battalion will want about 85 recruits annually enlisted for home service, or about 6,000 annually for our 71 battalions. This will give us a Battalion Reserve of 500 men in their first six years' period of Reserve service. My belief is that for short service at home under the proposed conditions these men would

be obtained. But if not, inasmuch as recruits for the home battalions are enlisted for home service only, I can see no reason why compulsory service in some form cannot, if necessary, be applied. We have at various times in our history adopted the principle of compulsory service for home defence; in fact, it still exists in the annually suspended Ballot Act for the Militia. All that is necessary is to demonstrate its necessity. I am convinced that if the Government would go to the country and say, "We want so many men annually for our Home Army and Militia, and unless we get them we cannot guarantee your immunity from invasion," the country would find the men, and if voluntary enlistment failed, then by compulsory service.

Moreover, it appears to me essentially unjust that the onus of finding recruits should be thrown upon the Military Department of the War Office. The duty of the Military Department is to ascertain the military needs of the country, and to train, supply, and equip the national forces. The duty of finding men and money should fall on the country itself.

We should require some amendment of the Militia Ballot Act, so that it might apply to all forces raised for home defence only, and to let it take effect when and where necessary to supplement voluntary enlistment. The latter has always been recognised as a means of filling the ranks, even when the Ballot has been in force. It is not improbable that most districts would find means of furnishing their quotas by voluntary enlistment rather than allow the Ballot to take effect.

Substitutes would be allowed, as under the existing law. It would probably also be desirable to make a money payment, or a fixed period of service as an "efficient" in the Volunteers with a reduced money payment, a means of avoiding the Ballot. The effect of this would be to draw into the Volunteers men belonging to the middle and lower middle class who now rarely serve in the Auxiliary forces in any capacity.

The county quotas, being now the same as those fixed by the Militia Act, 1852, would have to be revised by Order in Council, having regard to the changes in population which have taken place during the last forty-five years.

Under the existing law, dating from 1757, the lords-lieutenant and deputy lieutenants are responsible for the application of the Ballot. The fines leviable for not raising the quota would then be paid by Quarter Sessions. County Government having now passed out of the hands of Quarter Sessions into those of the County Council, a change in the machinery for putting the Ballot in force would probably be necessary. The Ballot might be made an "adoptive" Act, *i.e.*, it would be in the power of the local authority (County Council) to adopt the Act if they thought proper. The duty of finding the county quota would be thrown on the local authority. They would then, in case of any deficiency in the quota, have the alternative of paying the fine (at present fixed at £10 per man) or of putting the Ballot in force to get the men. The County Council (or one of its committees) would settle the quota for each parish or district, and on the Parish or District Council would fall the duty of administering the Ballot within their own areas.

Whether it be desirable or not to apply compulsory service to our Regular Army for home defence, it certainly should be applied for the Militia if the latter cannot otherwise be maintained at its full establishment.

One of the great obstacles in the way of recruiting is the reluctance of employers of labour to give employment to Reservists or Militiamen. An instance was quoted recently in this theatre (during the Prize Essay discussion) of an employer who posted notices in his works that no Militiamen need apply. As a practical remedy I venture respectfully to suggest that a clause should be inserted in the Army Act rendering any employer who refuses work to a Reservist or Militiaman, on the grounds of his military service, liable to a substantial penalty. I would also suggest that anyone having in his employ one or more Reservists or Militiamen should be able to claim a rebate of Income Tax or Inhabited House Duty in respect of every man so employed. We pay a retaining fee for horses in private employ and liable to Army service. Why not do the same for men?

*Appointment of Officers.*—To increase the efficiency of third and fourth battalions, I think some change should be made in the appointment of officers. I propose that about half the officers and all the non-commissioned officers above the rank of corporal should have Army service. Under the proposed scheme it will be noted that one commanding officer and one major of these battalions and eight company officers are Army officers on full pay. I would fill at least half the remaining vacancies, above the rank of subaltern, by retired Army officers. Liability to service in a third or fourth battalion should be made a condition of appointment of all Army officers to the Reserve of officers, and all retirements on gratuity or to pension should carry a similar liability. At present there are 368 majors and 405 captains in the Reserve, few of whom are doing duty in the Militia: sufficient to supply field and company officers to 100 battalions on the scale shown in the tables.

The junior ranks of Militia officers are to a large extent filled by Army candidates. The only qualifications, however, for a Militia subaltern are—17 years of age, good moral character, and a medical certificate of fitness. The last, however, is not considered sufficient to qualify him for the Army without further medical inspection. So far as mental qualifications go, his mind may be a perfect blank. Many units too are lamentably short of their establishment.

To improve the class of officers and to fill their ranks, I would advocate a proposal that has already been made, I think in this theatre, by Lord Raglan, viz., that service in a Militia battalion should be made the only road by which infantry officers could enter the Army. A candidate for the Army, before entering the Militia, should first pass a literary competitive examination based on the modern side of our best public schools. He would then be appointed to a third or fourth battalion, and, while serving there, should undergo a course of garrison instruction, followed by a qualifying examination in the four military subjects. Sandhurst might be retained as a school of instruction for junior officers in practical field work and equitation, which cannot

conveniently be carried on in a garrison class. Officers would be appointed to the Army according to the places gained in the literary examination. Some inducement should be offered to tempt candidates to pass the literary examination direct from a public school.

A word or two in explanation of the establishments given in the table.

Establishment No. I. has, for convenience, been taken at the present Indian establishment. It differs only from the present colonial establishment by an increase of one lieutenant and twenty privates.

In considering the numbers shown on Establishment II. it should be noted that, taking the average of the last ten years (as mentioned above), we require for India, the Colonies, and Egypt some 10,000 infantry recruits annually. Each of the sixty-nine territorial regiments would, therefore, be required to furnish, on the average, 145 men annually to the battalion abroad. As these men on enlistment serve two years with the home battalion, the establishment of privates for general service is taken at 300. In addition to the men enlisted for general service, the home battalion on Establishment No. II. will require a sufficient number of men enlisted annually for home service to maintain its establishment of privates at the total laid down for home defence (824). As these men are enlisted for two years with the colours and ten years in the Reserve, the maximum number of recruits serving at any one time is taken at 170, half of whom would pass annually into the Reserve.

I estimate of these 800 Reservists about 500 would be G.S. Reservists in their first period of Reserve service, and 300 in their second period. To these would also be added the foreign service Reservists coming from the battalion abroad. We should have also some 400 Militia Reservists liable to general service, 300 of whom would be added to the 500 G.S. Reservists of the 2nd Battalion when the latter was made up to its war establishment for a foreign expedition.

Officers, non-commissioned officers, etc., have been retained at the present establishment of an infantry unit serving at home.

Establishment No. III. comprises the cadres of two battalions, formed into four companies for the purpose of enlisting and drilling recruits. The officers would be on Army service and the non-commissioned officers, etc., taken from those on the general service list. For training or mobilisation they would be divided equally between the third and fourth battalions. The number of recruits required annually should be sufficient to maintain both these units at the home defence establishment, and therefore double the number required by the battalion on Establishment No. II.—340. This would give about 500 men per battalion in their first period of Militia service; and, say, 300 re-engaged men in their second period.

The numbers of non-commissioned officers may seem excessive, but a good many of them would be employed on recruiting duty, and it would probably be desirable that all recruits for the second battalion enlisted for general service should be drilled for at least three months at the regimental headquarters. It is also desirable that as great a

number as possible of well-trained non-commissioned officers should be available for the third and fourth battalions when trained or mobilised.

The numbers shown in the column headed "Reserves" show the officers, non-commissioned officers, and men required to bring the battalions up to their establishment for mobilisation or training. Some of the subaltern officers, though shown in this column, would, as Army candidates, be in reality serving with one of the home battalions.

Some provision would be required for the discharge of duties, other than regimental and recruiting, which now devolve upon an officer commanding a regimental district. The inspection of the Volunteers and all matters connected with their administration and mobilisation might be transferred to the officers commanding Volunteer brigades. The preliminary arrangements for the mobilisation of the three home battalions, including pay, clothing, and equipment of Reservists, mobilisation, stores, and transport, would remain in the hands of the lieutenant-colonel on Army service at regimental district headquarters. A Reserve officer of rank, with a suitable staff, should be detailed to take up the depôt duties when all three battalions had been mobilised and had taken the field.

To make a rough estimate of the comparative cost of my proposals, as compared with the proposal to add 12 line battalions to the Army, I have worked it out on the basis of daily pay only. Under the scheme suggested, 71 battalions on Establishment No. II. with 71 double battalions on Establishment No. III., and 15 additional Militia battalions, take the place of 62 battalions on present home establishment, 12 additional such battalions, the regimental depôts and the present Militia permanent staff. I call the latter proposal *A*, and mine *B*. It then appears to work out as follows :—

| | £ | £ |
|---|---|---|
| *A.* | | |
| 62 battalions now at home as per Army Estimates, 1897-8, at £20,061 6s. 3d. - - - | 1,243,791 | |
| Regimental depôts, as per Estimates - - - - - | 198,079 | |
| Militia P. S. annual pay, as per Estimates - - - - | 200,700 | |
| 12 additional battalions, at £20,061 6s. 3d. - - - | 240,735 | |
| | | £1,883,305 |
| *B.* | | |
| 71 battalions on Establishment No. II., at £15,920 15s. 5d. - | 1,130,450 | |
| 71 battalions on Establishment No. III., at £8,969 9s. 5d. - | 636,834 | |
| 15 additional Militia battalions for training only, at £1,580 - | 23,700 | |
| | | £1,790,984 |

This shows a small balance in favour of *B*, as regards pay only. There would, however, be the clothing and equipment of an additional number of men to set off against this. If the colonial battalions were brought up to the Indian establishment, there would be a further increase, due to the pay, clothing, etc., of 21 lieutenants and 420 privates.

We should have then available for foreign service (if all second battalions are at home) 6 battalions of Guards and 71 battalions of infantry of the Line, sufficient infantry for 3 army corps.

For home defence we should have, including the Guards, 219 battalions of infantry, or sufficient for 9 army corps. Assuming for the moment (a very big assumption, by-the-bye) that we had cavalry and artillery, etc., for this force, we should have an available field army of 300,000 men. At any rate, we should have upwards of 260,000 infantry to oppose to the 150,000 invaders which we assumed as his probable maximum.

It must be borne in mind also that for a foreign expedition, certainly in Europe and probably elsewhere, we should be able to use at least some of the 21 battalions now serving abroad, elsewhere than in India, their places in garrison being taken by newly mobilised battalions from home.

My object in reading this paper is not to attempt to lay down a cut-and-dried scheme, for which, indeed, I am not presumptuous enough to claim either the ability or knowledge. I desire to throw out some ideas in the hope that they may lead to discussion by those who are better qualified than myself to speak on this question. Some of the objections to my proposal are obvious, and others will no doubt present themselves to those who have had the patience to listen to my remarks.

I stated when I began that our organisation should be elastic—easily expanded and as easily contracted. Most of our present difficulties arise from the fact that some of our linked battalions have both units abroad. If that state of things is likely to be permanent, no doubt the simplest remedy is to increase the number of battalions at home, which is understood to be the intention of the Government. But is the present state of affairs likely to be permanent? Our policy in the past has been to withdraw our troops from our Colonies so soon as the latter can stand alone. When I joined the Army there were, I think, some 20 battalions of infantry, a regiment of cavalry, and 6 batteries of field artillery in Canada—now we have no troops there at all. Probably the time may come when we may withdraw our troops from the Cape. We profess to intend to withdraw eventually from Egypt. We may possibly hand over the defence of some of our coaling stations to the Navy and Marines. It would seem, therefore, not impossible that the present inequality may right itself, and we may want to contract our Home Army just as now we want to expand it. It is for this reason I propose, instead of raising fresh battalions for general service, to bring up to a permanent establishment one of the territorial Militia battalions in the case of each of those 8 regiments which have both Regular battalions abroad. Apart from convenience and economy, I believe such a step would have the best effect on the Militia service in proving to them that they are in reality part of our first line of defence.

I do not propose any alterations in the linked battalion system, which has now been in force nearly 30 years. On the contrary, I propose to develop it. The system has not yet had a fair chance, nor have the full intentions of its authors been carried out. The system caused much heart-burning at its commencement. Military traditions die hard. Units with splendid records resent being affiliated with others less distinguished, both being buried under an alias. But since those days new traditions have been formed, and more recent battles and campaigns inscribed on the colours of the linked battalions. Speaking as an outsider, I really do not know which battalions of the Derbys, the Dorsets, or the Gordons carried the Dargai heights. If you break up the linked battalions, how are you to divide the honours of the last 27 years? On the other hand, I should regret to see a new linking take place if that is what is meant by setting up four battalion depôts, as foreshadowed by the Secretary of State. What the Army wants in these matters is finality. As an old gunner, I speak feelingly on this matter. In the whole regiment of Royal Artillery (horse, field and garrison) I think there are only three batteries of horse artillery which retain the designations under which they were first raised. And yet there are many batteries, with glorious traditions, whose present officers and men would feel several inches taller were they acquainted with their previous history.

It may be urged that your home battalions are still nothing but depôts for the battalions abroad, and even on a lower establishment than before. This is no doubt true, but there are, I think, compensating advantages which might lead officers to reconcile themselves to this state of things. In the first place, although they are training a portion of their men for the foreign battalion, they are also training those whom they themselves will have to lead in war. In the second place, their unit will annually be made up to a full establishment when the general service Reservists are called up for training. Thirdly, since every officer will take his turn at comparatively short intervals with the foreign battalion, he will again command men for whose training he has laboured. Then, again, Army officers serving with third and fourth battalions, instead of spending the whole year licking recruits into shape at a regimental depôt, would for one month annually take part in the training of a battalion on a full war establishment. Officers who have had experience of regimental depôts can speak with more authority than I on this subject. But I must confess that it does seem a waste of power, and not likely to bring out the best qualities of officers or non-commissioned officers, to keep them in small depôts, training often an infinitesimal number of recruits.

I have no doubt whatever that the proposals now made would have the best effect on the Militia. The officers' cadres would be completed. The men would be trained and led by officers and non-commissioned officers, the majority of whom would actually be on Army service or have passed some years in the Army.

Would my proposals help recruiting? I think they would. As I have already pointed out, we should want a much smaller number of general service men—probably not more than half of the number we are

getting annually now. We should still get these men and could adhere more strictly than at present to recruiting regulations. It is, of course, impossible to say with certainty what the results of any new departure will be. As I believe, one of the main difficulties at present in the way of recruiting is to get men to pledge themselves to a lengthened period of service. With a short two years' service, men would come in out of love of change and of military life to be found in most young men. Once in the ranks, those who liked a military career would remain—men with any character or education would have a permanent employment open to them—others who thought they could do better in civil life would go into the Reserve; of these, again, I believe the great majority would accept the liability of the General Service Reserve in exchange for the substantial advantages it would offer them.

To sum up very briefly the above proposals, they are:—

1. A Foreign and Colonial Army with an eight years' colour service, four years' Reserve service with option of 21 years and pension in some cases—relieved by detachments only from the Home Army.
2. A Home Army with two years' colour service and ten years' Reserve service.
3. A Reserve divided into two classes—one with liability to general service whenever required, with certain corresponding advantages—to meet the case of small wars—the other with liability for service in case of great emergency or imminent national danger only, without reserve pay, but a small annual bounty.
4. A more efficient Militia maintained, if necessary, by the Ballot.
5. The abolition of the present regimental depôts, substituting for them the cadres of the 3rd and 4th Battalions.

APPENDIX.—*ESTABLISHMENTS.*

| | I. | II. | | III. | | Annual rate of Pay. | Cost. I. | Cost. II. | Cost. III. |
|---|---|---|---|---|---|---|---|---|---|
| | | | Reserves. | | Reserves. | £ s. d. | £ s. d. | £ s. d. | £ s. d. |
| Lieut.-Colonel .. .. | 1 | 1 | — | 1 | 1 | 328 10 0 | 328 10 0 | 328 10 0 | 328 10 0 |
| Majors .. .. .. | 4 | 3 | — | 1 | 1 | 247 17 11 | 991 11 8 | 743 13 9 | 247 17 11 |
| Captains .. .. .. | 5 | 6 | — | 4 | 12 | 211 7 11 | 1,056 19 7 | 1,268 7 6 | 845 11 8 |
| Lieutenants .. .. .. | 9 | 8 | — | 4 | 12 | 118 12 6 | 1,067 12 6 | 949 0 0 | 474 10 0 |
| 2nd Lieutenants .. .. | 8 | 4 | — | — | 16 | 95 15 3 | 766 10 0 | 383 5 0 | — |
| Adjutant .. .. .. | 1 | 1 | — | 1 | 1 | 302 12 1 | 302 12 1 | 302 12 1 | 302 12 1 |
| Quarter-Master .. .. | 1 | 1 | — | 1 | 1 | 164 5 0 | 164 5 0 | 164 5 0 | 164 5 0 |
| Sergeant-Major .. .. | 1 | 1 | — | 1 | 1 | 91 5 0 | 91 5 0 | 91 5 0 | 91 5 0 |
| Bandmaster .. .. .. | 1 | 1 | — | 1 | 1 | 91 5 0 | 91 5 0 | 91 5 0 | 91 5 0 |
| Quarter-Master-Sergeant .. | 1 | 1 | — | 1 | 1 | 73 0 0 | 73 0 0 | 73 0 0 | 73 0 0 |
| Sergeant I.M. .. .. | — | 1 | — | 1 | — | 59 6 3 | — | 59 6 3 | 59 6 3 |
| Orderly Room Sergeant .. | 1 | 1 | — | 1 | 1 | 45 12 6 | 45 12 6 | 45 12 6 | 45 12 6 |
| Colour-Sergeant .. .. | 8 | 8 | — | 8 | 8 | 54 15 0 | 438 0 0 | 438 0 0 | 438 0 0 |
| Sergeant-Drummer .. .. | 1 | 1 | — | 1 | 1 | 42 11 8 | 42 11 8 | 42 11 8 | 42 11 8 |
| „ Pioneer .. .. | 1 | 1 | — | 1 | 1 | 42 11 8 | 42 11 8 | 42 11 8 | 42 11 8 |
| „ Cook .. .. | 1 | 1 | — | 1 | 1 | 42 11 8 | 42 11 8 | 42 11 8 | 42 11 8 |
| Sergeants .. .. .. | 32 | 24 | — | 24 | 24 | 42 11 8 | 1,362 3 4 | 1,022 0 0 | 1,022 0 0 |
| Drummers, Buglers, etc. .. | 16 | 16 | — | 16 | 16 | 19 5 5 | 308 6 8 | 308 6 8 | 308 6 8 |
| Orderly Room Clerks .. .. | 1 | 1 | — | 1 | 1 | 30 8 4 | 30 8 4 | 30 8 4 | 30 8 4 |
| Corporals .. .. .. | 40 | 40 | — | 40 | 40 | 30 8 4 | 1,216 13 4 | 1,216 13 4 | 1,216 13 4 |
| Privates—General Service .. | 900 | 300 | — | — | — | 18 5 0 | 16,425 0 0 | 5,475 0 0 | — |
| „ Home Service .. | — | 170 | 800 | 340* | 1,600 | 18 5 0 | — | 3,102 10 0 | 3,102 10 0 |
| Totals and Annual Cost .. | 1,033 | 591 | — | 449 | — | £2,171 3 2 | £24,887 10 0 | £15,920 15 5 | £8,969 9 5 |

* Serving for six months only.

Major-General R. L. DASHWOOD:—I agree with a great deal of what the lecturer has told us, especially with what he says with regard to the deferred pay and giving further inducements to men to prolong their service and serve twelve years with the colours, and then go on to the Reserve. But I differ with him altogether when he speaks of the linked battalion system, which he more or less approves of. He says, in the first place, the linked battalion system has not had a fair trial; I think thirty years is a fair trial for anything on earth. He goes on to say that if these battalions were unlinked—which I sincerely hope they will be—it would be very difficult to say how the honours were to be distributed. Then he goes on to tell us he does not know what battalions were engaged in the Dargai heights. Perhaps not, but that could be found very easily by reference to Hart's Army List. With regard to the new history which he says they are going to obtain, of course that means they would have a new regimental tradition, the old *esprit de corps* having been more or less knocked on the head. We have heard of that before. We have been told by the War Office, when they drew their pen through all the old regimental histories, that we were going to have a new regimental history and a new *esprit de corps*, founded more or less on the territorial system. But surely, gentlemen, an *esprit de corps* founded on the mere accident of locality of birth is a very different thing, and not to be compared with an *esprit de corps* founded on gallant feats of arms which have been performed in the last hundred years. We know very well that in the old days it has happened in war that regiments in battle in great stress have been reminded of former gallant deeds. We have read that at the battle of Corunna, Sir John Moore said: "Highlanders, remember Egypt." We have heard and read that at the battle of Inkerman, when the 57th—the old "Die-Hards"—were hard pressed, that someone cried: "Fifty-seventh, remember Albuera." Such a cry to the Middlesex Regiment would be but an empty sound. Now I altogether deny that to shorten the service, as has been done since 1870, for the purpose of obtaining a Reserve (a very good thing) it was necessary in any way to interfere with the old regimental system. You might, if you liked, have added county names to regiments as they stood. Many of them had county titles in addition to their numbers. It was perfectly possible that regiments should have retained their numbers, and each battalion been able to feed itself. A battalion at home should have its depôt with the head-quarters: it is the best place; a regiment abroad must have a depôt at home: it has been recommended by soldiers in very high positions that we should return to the old depôt battalion system, more or less. I have served with several depôts, and they were very good and efficient and not expensive. There was a large number of soldiers there, and plenty of men to drill, and I was drilled in one of these depôt battalions many years ago. Why, instead of leaving us alone and shortening the service and having a Reserve, did they double up the battalion? Well, we all know very well what the powers that be think most of. In the first place they want economy, and, in the second place, efficiency. If they can palm off on the public a spurious efficiency, and at the same time get credit for economy, they are all right. I suppose it occurred to those gentlemen, the War Office clerks sitting there with their books and figures before them, "We have hitherto been put to some expense with regiments coming home from India, which had men with several years to serve. (In former days, some of these men volunteered to stay in the country; no man could be forced to do so.) We will make the soldiers interchangeable so that we may put them, like a match, from one box into another, which goes off as well in either, and we shall save some money, instead of sending all these men home." These War Office civilian officials knew nothing about the Service, and they entirely ignored human feelings and human nature. We know that Napoleon, the man who best of all others knew how to deal with men, said that the moral as to the physical was three to one. Therefore, these officials invented the present system of linked battalions, and all the rest of it, which was in fact cheap and nasty. Now it often happens

that a thing that is cheap and at the same time nasty turns out in the long run to be both dear and bad, and I think that has been the effect, more or less, of this system. The result has been that men have been chucked about from one regiment to another, which they very much dislike. When a man has made his home in a corps, and has his comrades and so on, he does not like being sent off to another one. That, I have no doubt, has had some ill-effect on recruiting. I remember once when I was in India I happened to be away from my regiment for six months, and during that time an officer exchanged into the battalion to command it. He was a very smart officer, and a good man. At the end of his six months when he went away, time expired, and I came back to succeed him, I remember saying to a sergeant I knew well, who had met with an accident, "How are you getting on?" He said, "Very well, Sir," and added: "We are all very glad to see you back, Sir, we like the old faces best." There is a good deal in that—the old faces. Men now have not so much chance of seeing the old faces, and everybody knows that a regiment which has been together for some years, where men and officers know each other well, the bond of union between all ranks is strengthened, *esprit de corps* increased, and discipline is improved and made more easy; and without discipline there can be no efficiency. Since this new system was brought into play there have been several commissions. One was Lord Airy's Commission, or Committee, I forget which, composed of very distinguished soldiers, and they recommended large modifications to the present system. Their commission was shelved; it did not suit the civilian authorities. Then there was the commission of Lord Wantage. That, I think, was packed to some extent, and the documentary evidence which was sent home by Lord Roberts I have good reason to know was burked. Not only that; but they put Sir Arthur Halliburton, a civilian, a glorified clerk, upon the commission in order to wreck it. No doubt he did wreck it. Sir Arthur Halliburton made a report by himself and went dead against all the opinions of the officers, and, therefore, no action was taken as regards the finding of this commission. This shows that if the opinions of officers differ from those who are in power we are set at naught. In fact, the officers of the Army—more especially the regimental officers—are in the position of Galileo: the civilians have the power to do exactly as they like, whether they are right or wrong. There is one point which the lecturer has not touched upon. I think if you are going to have a voluntary Army you cannot do without pensions. I am aware that pensions were done away with because it was said they were expensive; but if you want a thing good you must pay for it, whatever it may be. People forgot when they did away with these pensions in former days that they were in reality offering less money and less inducements. We should have pensions for men who serve with the colours their full twenty-one years on the expiration of that service. We do not want every man to serve his twenty-one years: we want a mean; we do not want to go back to the old system: we want a mean between the old and the new. We want more men to serve twelve years with the colours, and possibly a few exceptional soldiers, 18 to 21 years with the colours. The regiments then at home would not be entirely ruined, as they are—"squeezed lemons," as a high authority has called them. Every man who enlists with the idea of a pension of course hopes to live to enjoy it; but in the ordinary course of human nature some will not. Therefore, if every man who enlisted were bound to serve 21 years—say seven years with the colours and 14 with the Reserve, or 14 with the colours and seven with the Reserve, and had a deferred pension at the age of, say, 50, according to the time he had served with the colours, I think it would have a good effect. Many men of the right stamp will not enlist now because they do not think the bargain is good enough.

Captain A. V. J. COWELL (2nd Battalion Rifle Brigade):—The lecturer has said in his admirable paper that England cannot, under any circumstances, effect

large landing on the Continent. I respectfully suggest that we should be in a position to land 150,000 across the Channel within twenty-four hours, and that we would thereby gain great prestige. In this paper I presuppose that all money difficulties have been overcome. This being so, there are about half-a-dozen ways in which the problem for supplying an efficient service for Great Britain can be solved. The way that I consider the best is as follows:—At present there are approximately 82,500 infantry abroad and 54,000 at home; these men being distributed amongst the battalions who are stationed—in India, 46; in Colonies, 34; at home, 67. The first question that requires to be settled, in view of our extension of frontiers, is: (*a*) The number of effective men required in peace, and (*b*) the number required for war. According to the opinions of experts, I suggest for (*a*):—India, 50,000; Colonies, 35,000; home, 25,000, ready to march at six hours' notice; for (*b*):—the same numbers for India and the Colonies; at home, a mobilised force of 300,000 men capable of being mobilised in three days and ready to proceed anywhere, with a further force of 300,000 for home defence, and a local force of 20,000 men for the defence of the Colonies. Owing to the great difficulty already experienced in obtaining the number of recruits required for the Regular Army, it is obvious that in order to obtain a still larger number special inducements must be resorted to, and I suggest:—1. That greater inducements should be offered to those bringing recruits. 2. That deferred pay should cease, and that a man should receive a clear shilling a day. 3. That on completion of seven years' service a man should be granted six months in which it is optional for him to return to the colours, in order to complete his twelve years' service, on the understanding that during those five years he will receive one and threepence a day, and will then be relegated to the Reserve for ten years. 4. That all Government and municipal appointments should, as far as possible, be granted to old soldiers. Owing to the present system having failed to obtain sufficiently effective home battalions in time of peace, I propose, in order to overcome this difficulty, that the following arrangements in regard to organisation be adopted:—1. That battalions should be named and quartered as at present. 2. That the service company, 250 strong, be introduced, and should become the tactical unit instead of the battalion. 3. That for the purposes of enlistment, drafting, training recruits, etc., the infantry be divided into eight corps, viz., Guards, Light Infantry, Fusiliers, Royal regiments, English and Welsh regiments, Scotch regiments, Irish regiments, Rifles. 4. That the foreign battalion should consist of four complete service companies. That ten battalions at home should consist of five service companies, and that the remainder (about sixty) should consist of one service company and three cadre companies, thus giving a force at home ready to march of: ten battalions, 1,250 strong (allowing for casualties), 10,000; sixty companies, 250 strong (allowing for casualties), 15,000; total 25,000. 5. The strength of the cadre companies to depend upon the needs of the portion of the corps abroad, and of the service company. 6. That in the event of small wars, the service companies above referred to should be formed into composite battalions of their own corps. Now turning to the far larger question of Class B, we must admit that in order to obtain such a great number of men, ballot must be resorted to, and it only becomes a question of discovering the means whereby this may be applied with the least harm to the State, hardship to the individual, and cost to the nation, having a due regard to efficiency. Of the 300,000 men required to be available to leave England, we may assume that 60,000 may be expected to belong to the Regular Army and its Reserve, leaving 240,000 men available for foreign service, and 300,000 available for home defence, to be obtained from other sources. I suggest, to obtain these numbers:—1. That the Militia and Volunteers should be amalgamated, and called the Auxiliary Force. 2. That ballot should be enforced, that substitutes and exemptions be permitted. 3. Obligatory service in this force should be from the

age of twenty-five to thirty-five. 4. That it should be a territorial unembodied force with a training similar to the Volunteers, clashing as little as possible with the men's private callings. 5. That 44 per cent. should receive pay of sixpence a day, and form the force for service abroad. These men should always be under military law, and should be more highly trained than the remainder of the force. 6. Schools and colleges should be obliged to include drill and tactics in their syllabus. 7. That all officers receiving a pension or gratuity should be held to serve with the Auxiliary Force till physically unfit. 8. That all those seeking commissions in the Regular Army should be obliged to serve for three years in the Auxiliary Force. 9. That a corps of officers should be trained to assist in the training of this force, and a due proportion of men who have gone through the ranks should be with it in time of peace. With regard to these figures they are merely given as examples in order to get the correct numerical figures for the various Army departments.

Colonel H. H. A. STEWART (late Donegal Artillery Militia):—I have noted two or three salient points in the lecture, which I have read and listened to with very great interest and attention. The first point I wish to refer to is this—and regarding it Colonel Legard has rather taken the wind out of my sails, because he has now interpolated a parenthesis. He says: "An officer of distinction who has recently had opportunities of seeing the Armies of France and Germany in the field"—"in the field," I suppose, is a euphuism for manœuvres—"has stated that he does not consider our Auxiliary forces good enough to meet the troops of either country, man to man, with a fair chance of success." Well, my lord, I have seen the troops of both those countries in the field—that is, at manœuvres—and I have also seen a large body of Austrian troops at manœuvres, and if Colonel Legard, in speaking of the Auxiliary forces, refers to the Militia,[1] which presumably he does, I, as an old Militia officer and as an officer who served for over twenty years in the Regular Army—I commanded my County Militia for seven years until the other day—I unhesitatingly state that, man to man, so far as physique goes, the Militia can well hold their own against any of the men of those Armies. And more than that, inasmuch as the soldiers composing those Armies are conscripts and our Militiamen are free men, *à fortiori*, they are superior to the conscripts of the Continent. It is admissible for me to disagree with a distinguished officer—and distinguished officers on Service questions very frequently disagree amongst themselves—but I make no claim to be a distinguished officer myself. The next point is where the lecturer says: "The Royal Highlanders, Perth, and the Gordon Highlanders, Aberdeen, might surely also be represented by more than one Militia battalion. Moreover, any system of compulsory enlistment must be based on population." Very good. "Equalisation of territorial battalions was contemplated under Lord Cardwell's scheme; the idea being that every 100,000 population should provide 1,000 soldiers." I do not think that Colonel Legard can have studied this point of his lecture with as great attention or accuracy as I have. I have paid particular attention to this, because I served for several years in one of the very regiments he mentions—the old Gordon Highlanders. I am not a Scotsman, I beg leave to say, though I am from Scotia; a Scot from Ireland—and Scotia was the old name of Ireland and gave its name to Scotland. He proposes that the number of the Highland battalions, which already amount, including the Militia battalions, which are most important, to 22, should be increased by two more, that is, they should be 24. But to do that, on Lord Cardwell's basis, would require a population

[1] The committee on the Militia, presided over by Lord Harris, in its report, in 1890, recommended that the title "Auxiliary Forces" ought not to include the Militia, which force should be designated by its own proper title, and this recommendation was complied with down to, I think, the year 1894, in all official documents, etc.; since then the title of the Militia has merged in that of the "Auxiliary Forces," but under what authority I am unaware.—H. H. A. S.

of 2,400,000. What is the population of the Highlands? It is under 400,000. That is, taking the population of Scotland, which is sufficiently correct, at four millions, the population of the Highlands is one-tenth of the population of Scotland. What have the War Office done? They have called upon Scotland to raise as many regiments from the Highlands (and I beg leave to suggest, in parenthesis, that Highlanders have exhibited a great "backwardness in coming forward" as soldiers in the Regular Army for the last generation or more) as the whole of the rest of Scotland with a population of 3,600,000. Next the lecturer goes on to say: "Anyone who has served in India must have observed the helplessness and inefficiency of a unit newly arrived in that country." I have had three tours of service in India. In my second tour I went out with a battalion which had never served in India during its existence. I was one of three or four officers who had served in India before, but not a single non-commissioned officer or man had ever put foot in India. Although I served in the 92nd in India several years I could not detect the slightest symptom of helplessness or inefficiency on the part of the battalion I speak of, and in corroboration of that I should like to ask those present to carry their memory or knowledge of history as far back as the Mutiny, about forty years ago, when some twenty or thirty battalions were suddenly landed in India. A large number of those battalions had never set foot in India before, but they made very short work of the mutineers. They did not display any helplessness; they did not display any inefficiency. The fourth point I wish to comment upon is that Colonel Legard—though "in plain clothes," or under ordinary circumstances, I am sure he would be a most good-natured and amiable man—in speaking about maintaining the Militia at its proper establishment, shows himself to be a good deal of a coercionist. He says if it cannot be maintained at its proper establishment, by all means let us enforce the ballot. Why should it be necessary to enforce the ballot, inasmuch as the voluntary system, as I said in this lecture-hall two or three months ago, has, in my experience of thirty-six or thirty-seven years, never had a fair chance. In support of that I may say that I spoke only the other day to a recruiting sergeant, who said:—"Sir, we have no chance this winter at all; it is too mild. What we want is a good hard winter accompanied by a strike. Then we get lots of them." How can you call those men voluntarily-enlisted soldiers? They are compelled by want to enlist. They have never been given proper inducements by the Government of the country to become soldiers, and the astonishment to me is that so many enlist. I am entirely in accord with the lecturer on some points. He speaks highly of the Militia Reserve. From my experience of my own county regiment for thirteen years I look upon the Militia Reserve as a most magnificent body of men. I think it is a great pity that an additional penny a day is not given, besides the retaining fee they get, but I think, at all events, any man who is a Reserveman in the Militia ought to be given a badge showing he is in the Reserve. We all know how proud the soldier is of a badge. The last observation I wish to make is this: The lecturer says, "I believe such a step"—that is, having a Militia battalion embodied—belonging to the same territorial district in which both Regular battalions are serving abroad—"I believe such a step would have the best effect on the Militia service, in proving to them that they are in reality part of our first line of defence." But, my lord, the Militia want no such proof. On the contrary, the Militia have proved to their countrymen over and over again throughout this century that they themselves, the Militia, are in reality in the first line of defence. They proved this during the Peninsular War. The Duke of Wellington testified to the same thing at the battle of Waterloo, where a large number of those who assisted in gaining the battle were Militiamen—clothed and equipped and armed as Militiamen. But let us come to the Crimea[1]

[1] The strength of our Army at the Alma was 25,000. At Inkerman, 22,000; but at the conclusion of the war, in 1856, our Army in the Crimea amounted, I think, to about 50,000; moreover, the Mediterranean stations were at this time practically garrisoned by the Militia.—H. H. A. S.

and the Indian Mutiny. In the Crimean War our Army could never have kept the field had it not been for the thirty-two or thirty-three thousand men who joined it from the Militia. The same remark applies during the Indian Mutiny.

Colonel E. T. H. HUTTON, C.B., A.D.C. (A.A.G., Curragh District):—The last speaker but one has alluded to a statement alleged to have been made in the paper read by me at Aldershot in December last. In the letterpress of the proofs issued for the use of the audience, but not as he read it, the lecturer states that I had said that the troops of our Auxiliary forces—that is to say, the Militia and Volunteers—were not equal, "man to man," to the troops of the Continent. The statement, as it appears in print, is misleading and inaccurate; what I did say was this—and I think most of you will agree with me—that our Militia and Volunteer Services, "*constituted and organised as they are*," are not a match for Continental Armies. That is a very different statement from that with which a previous speaker has credited me, and the audience will readily admit that the real statement made by me is a very different thing to that given in the letterpress. I am obliged to the previous speaker for having given me the opportunity of making that point clear. The deductions made in the paper written by me as a lecture for the Military Society of Aldershot, and since published in the *United Service Magazine* for February, included the statement that our Militia and Volunteer systems, as the real defence force of Great Britain, are deficient in those all-important factors of organisation and administration which are essential to any effective defence of this country and of the Empire. Without alluding to the composition of the *personnel* of the Regular Army, I would invite the attention of the lecturer to the point, that he alludes repeatedly in his paper to the Regular Army as the "Home Army." In doing so he confuses, I think, two separate issues. The Regular British Army is not a "Home Army" in the sense of an Army for "Home" defence; on the contrary, the Regular Army is an Imperial and a Foreign Service Army, an Army charged with maintaining law and order throughout our world-wide possessions, and with enforcing, if need be, our sovereign rights. Its obligations are world-wide. I think that a distinction should be carefully maintained between the "Imperial Army," the Regular Army organised for Imperial purposes of defence, and for maintaining our sovereign rights throughout the world, and that "Home Army," by which we mean the defence force for the protection of our shores and for such offensive-defensive operations as may be required in connection therewith. The lecturer has touched upon one very important question, and one which I am only sorry that he did not more emphasise: it is with reference to the re-organisation and increased efficiency of the Militia. It has been my fortunate lot to have been in command not only of Militia troops in this country, but also of those in one of our most important Colonies, and I may assure all gentlemen here, in this connection, that the Militia force in some of our Colonies is quite equal in efficiency to that of the Militia force in the United Kingdom. In some respects, indeed, the Militia force of some of our Colonies is in advance of that at home, inasmuch as this Force comprises a complete military unit, and includes field artillery, cavalry, infantry, engineers, and the required proportion of all those administrative departments which are essential for making an effective military force. I venture to think that it is in these very matters of organisation and administration that the military Militia system of the United Kingdom is so unhappily defective. The lecturer has also touched upon an extremely important point, viz., the enlistment for the Militia. He has urged the sub-division of the United Kingdom into definite military areas which shall correspond with our counties, from each of which distinct area or county a certain quota of Militia should be demanded upon a voluntary-compulsory system. Such quota—I would venture to supplement his remarks—should not only be infantry, but should form a complete military unit upon the Swiss Militia system. Many of the gentlemen present are doubtless aware that Switzerland is divided into military districts

corresponding with the cantons. Each such military district finds not only its quota of infantry, but its proportion of field artillery, cavalry, and administrative departments, so that the Militia force of each canton in Switzerland constitutes a complete military unit in itself, and is, therefore, available and ready to take the field separately if need be. I wish very heartily to congratulate Colonel Legard upon his valuable paper, and upon the many practical suggestions which it contains.

Captain W. H. JAMES, *p.s.c.* (late R.E.):—In these days of destructive criticism I think we are to be congratulated that Colonel Legard has come forward this afternoon with some practical remarks. No doubt I am in the position of the majority here to-day. I have read many columns of destructive criticism, and at the end of the series of articles, or the end of the letter, there has been thrown in as a sort of make-weight a little suggestion as to what might possibly be a better way of improving the Army. The suggestions to the destruction have always borne, to my thinking, the part that Falstaff's bread bore to his sack—an infinitesimal part. But Colonel Legard has made very many practical suggestions to us, and I have great pleasure in supporting him, more especially because I made a good many of them seventeen years ago in the old Institute at a lecture I gave there "On the Best Means of Adapting our existing Forces to the Needs of the Empire." I think, as the lecturer very justly points out, that the weak point of our present military system—nay, it has always been the weak point of any military system, if we can ever really apply such a term to anything we have had—is this, that nothing has ever been properly carried out. Critics combine in abusing the present system, but they ought to know, if they do not know, that that system has never been carried out in its entirety; it has never been carried out in the way it ought to have been, if it was to be made a success. I am not going to allude to any magnified clerks or make any personal allusion, but I will suggest that there is one Old-man-of-the-Mountain that sits on any question of reform, and that is the building over the road known as the Treasury. I am a little inclined to think, if you could go into the inner workings and find out why our systems of reform have never been a success, we should see that above everything lay the fact that the Chancellor of the Exchequer is advised by his—may I use the word—civilian clerks of the Treasury to refuse to find the needful. The late Commander-in-Chief of the Army was often very much taken to task by the papers for saying that Army reform would require money. I think he was right. To have any rational system properly worked out would at its initiation cost a good deal of money, and we have to face that if we are to have such a system. The first point we have to make up our minds upon is this, that so long as we have a Volunteer Army we must have, as the lecturer has shadowed in his suggestions with regard to enlistment, free trade in the Army. You must not bind a man down, but you must let him enlist for a long period or a short period—in fact, accommodate himself to the circumstances which suit him. The question as to whether a volunteer or a conscript is the better man, is, I think, utterly beside the case. I suppose no one seriously will put forward the statement, that conscripts have not fought as well as any volunteers that ever lived. Surely it is written in letters of blood that the great nations of Europe which have adopted conscription have fought just as well as ourselves who have the volunteer system. May I also remind the gentleman who made that statement, that at the beginning of this century we were ourselves compelled to have recourse to conscription for our own Militia, that we could not get the proper numbers without it, and that for the local Militia we had conscription, which was rigidly enforced. What has always seemed to me the weak point when we started the Cardwellian plan was this, that we never really adopted what was at the bottom of the whole system, namely, the non-relief of the foreign battalion; but to have a foreign battalion and a home battalion, and to relieve them by a roster of officers and by drafts of men, there is no hardship in that. As Colonel

Legard points out, the battalion of the Rifle Brigade now coming home will bring nothing but its mess plate of the original battalion. If that portion of the system were carried out I believe it would be much better. With regard to linked battalions, I personally think that an ounce of fact is worth a ton of theory. It is not unknown, I should hope, to a great many gentlemen here, that the regiments which were enabled to maintain their strength at the front in the Peninsular days were the regiments which had reserve battalions at home, and those that had not reserve battalions at home were unable to do so. In other words, to keep a regiment on active service it is necessary to have a battalion at home to feed it. That is a historical fact which nobody can deny. It is reiterated again and again in the Wellingtonian despatches, and is an absolute fact which it is impossible to do away with. If that be the case, surely, whether we have a hundred regiments or two hundred regiments, the double-battalion system is the best. Moreover, if you split up the link battalion, what are you going to do with the old two-battalion regiments—with those which have had two battalions for a great many years? Are you going to break them up, too? Because what is sauce for the goose is sauce for the gander, and if it be desirable, on *a priori* grounds, to break up the existing linked battalions, then you must break up those which existed before. The argument is all one way; the declamation is the other. The papers have been full of the gallant deeds of the Gordon Highlanders at Dargai. Everybody knows that it was not the 92nd but the 75th who did it, but nobody talks of the 75th. They were very pleased to have the name of Gordon Highlanders, and when Colonel Mathias made his address he did not say "75th," he said "Gordon Highlanders," and surely that is an example of the fact that these amalgamations can take place. They have taken place in the past, and I honestly believe, after considerable investigation into statistics, that it is capable of proof that our best regiments have been local regiments, raised nearly all in one locality, and that any good system fosters that local connection and increases it by having, as I said, a battalion at home which furnishes the battalion abroad. And let me remind you that our foreign battalions are always at war strength. They do not require thousands of men to be sent abroad to make them up to war strength when war is declared. On the contrary, they are practically up to war strength always. We forget that. We leave out of our consideration the fact that we are always in a state of war, and that our infantry battalions abroad are, for all practical purposes, constantly in the field. With regard to the question of pay, I think we are all agreed about one thing, namely, that if you want a good article you must pay for it. At the present moment men are not coming forward in such large numbers. I know that on good authority. I am a little inclined to doubt whether we have not got to the end of our tether on the voluntary system of raising men, and whether we can get any more recruits for our Army as long as we adhere to the present system. Under the present inducements I doubt whether we can get more men. If you want to get good men to enlist in the Army you must have other inducements, but I do not believe that these are to be found in length of service and in a pension. I believe, on the contrary, that the best men are those who will go into the Service because they say: "Very well, at the end of my seven or eight years I know I shall get a billet. I like soldiering, and I am willing to join the Army because at the end of that time I shall have an assured career before me." A good many of us here are able to remember the old days in India; when regiments went home, numbers of men from those regiments volunteered to stop. They do not do so now, and they cannot be induced to do so. Efforts have been made lately, and although some of the so-called reformers say it must be done, and should be done, and can be done, it cannot, because the men won't do it. I say encourage *esprit de corps* in every way. I believe at present, having got the double battalions, we should stick to them, give them back their old facings, or the facing of the senior battalion; they ought to have it. Their abolition was, if I may say so, really a clerical measure. Why on

earth the Buffs should be allowed to have their old facings and the Northumberland Fusiliers not be allowed to have their old green facings is a thing that passes the wit of man. There is also a number of little things which I think are great things as affecting the comfort of the soldier, because it is the summation of little things which make up the whole. Why are the barrack-rooms not properly lighted? We all know that there is never enough gas for the men to see by. There are never coals enough to warm them. I am sure we shall not increase the National Debt very enormously by giving the soldier a little more gas and coal. These attentions to comfort and matters of that kind are great inducements for the men to enlist. Another thing: pay your non-commissioned officers very much more highly. The only way to get old non-commissioned officers is to pay them better. They will then stop for the twenty-one years, and you will get a very much better class of men than you get at present.

Captain R. D. MacDonnell (late Madras Staff Corps):—I should like to pay my meed of praise to the lecturer for the very valuable paper which he has provided. Whether we agree with it or not at this time, there is no doubt it will prove very useful to those who read it in forming some conclusion on this matter. There is one point which I do not think this country would ever agree to, namely, conscription. I think as the years roll on they are less inclined to do so. It is impossible to dissever the question of the increase of the Army or the augmentation of it from the political question which is decided in the House of Commons, and I do not think you will ever bring the House of Commons to the conclusion that conscription is necessary. I may perhaps astonish this meeting for a moment if I say that it is not at all proved that an increase of the Army is necessary. There are many very able men, writers and others, who have considered the subject, who are not at all convinced that we use our Army in a way most beneficial to the country, or that the distribution of our Army is at all the best distribution of it. I would remind this meeting that during the last twenty years—let us say from 1877 to 1896—the Army has been augmented by more than 30,000 men. The real difficulty of our present situation is this, that while the forces serving abroad have been increased by 25,000 or 26,000 men, those at home have been augmented by only 4,000 or 5,000, and as the battalions at home have to fill up the vacancies caused by death, by invaliding, and by the discharge of time-expired men, the home battalions become unduly depleted, and unable to bear the strain imposed on them, and it stands to reason that the claims that are thus made upon them are too onerous and more than they are capable of fulfilling, and that the machine is liable and likely to break down. I think I am right in saying that the lecturer does not propose in the scheme he has put forward to interfere in any way with linked battalions. I think that is very wise, because the linked battalions—I have written anonymously on this subject—so far as my knowledge goes, have never been given a proper trial, simply because the battalions at home, which should feed them, are in some instances non-existent. There is one other matter I want to put before you. There is no doubt that one of the most serious difficulties we have to contend with is how to meet the drain on our forces in what are commonly known as "small wars." We are always engaged in small wars. Great European wars fortunately do not come about so often. I cannot help thinking that with an Army Reserve of something like 80,000 men it ought to be possible to formulate some scheme by which a certain fixed proportion of those men were always ready and always liable for immediate service abroad if they were called upon. I hope most sincerely that those who are now in charge of the security of this Empire will no longer delay in bringing forward some scheme or formulating some measure by which the panics almost that at times exist in this country amongst civilians will be allayed once and for all. I think that at the time of the Jameson raid, nothing was more unfortunate, and nothing more humiliating, than to feel we had hardly any soldiers in the country to defend us. Yet I cannot help

pointing out to this meeting that we have in this country, taking our Army abroad and at home, Militia, Yeomanry, and Volunteers, a force of nearly 650,000 men. It seems very strange that with 650,000 men there can be no organisation. What I complain of is *there is no organisation* existing by which those forces which we have can be welded together into one homogeneous whole. In an emergency it should be possible in this country to put at any moment under arms, fully equipped and ready to meet any invader, a body of at least 100,000 men.

Major J. W. H. MARSHALL-WEST (4th Batt. (Prince Albert's) Somersetshire Light Infantry):—I will only allude very briefly to two points which were touched upon in the lecture, and which, I regret, have not been discussed. The first has reference to a matter which was raised in this hall at the recent discussion of the Prize Essay. In the lecture it is referred to in these words:—"As a practical remedy I venture respectfully to suggest that a clause should be inserted in the Army Act, rendering any employer who refuses work to a Reservist or Militiaman, *on the ground of his military service*, liable to a substantial penalty." To think that in this country of ours a man should be able to make such an announcement! It seems to me a disgrace to us as a nation. Therefore I trust that the suggestion of the lecturer may go far and wide, and may cause very deep thought. The second point, of a somewhat similar nature, was indirectly emphasised by the remarks of Captain James, who expressed a doubt as to whether we had not reached the point at which no more recruits could be obtained under existing conditions. It seemed to me that amongst the many valuable suggestions put forward by the lecturer were those for overcoming the present difficulty in obtaining recruits, by alternative conditions of enlistment. At present the would-be recruit does not always know to what he must bind himself, and consequently he hesitates. This is illustrated clearly in the case of the Militia. Men often go into the Militia to see how they like it. They find that they do like soldiering, and so they become Regulars. In this connection arises the other suggestion which I hoped to have heard discussed. I am not prepared to offer any suggestion of my own, and for this very reason I should have liked to have heard it brought forward by someone more competent to deal with a matter of so great importance. Other nations can do it, and there would seem no reason, therefore, why we should not work out some such scheme. It was suggested to me by these words:—"Inducements, however, should be given to encourage non-commissioned officers and the best soldiers to extend their service to twelve years, and then to pass into the Second Class Army Reserve, *with a guarantee of employment in civil life.*" I want to know how that guarantee is going to be effected. If some guarantee could be given, I maintain that we should find no difficulty in obtaining all the recruits we want. If there were that inducement, if men knew that there was a definite aim and honourable conclusion to their service, I do not believe we should have any difficulty at all. I thank the lecturer very much for his thoughtful and valuable paper.

Admiral of the Fleet Sir J. EDMUND COMMERELL, V.C., G.C.B.:—The lecturer has made a few remarks which I desire to answer. He says, "Some writers appear to assume that our Navy renders any invasion impossible." I will agree that some writers do so, but I think they make a very great mistake. I think myself that a combination of circumstances may arise in which the invasion of our shores, either near or far, may be absolutely within the bounds of possibility. If these writers are right, if we take no steps to prevent it, no harm will be done; but if they are wrong, what will be the consequence? We shall find ourselves in the worst of all cases; we shall find ourselves with a hostile Army on our shores, and I should like to know what that would mean. When you think of what the responsibilities of the Navy are at the present day, and what they have been in the past, you will see they are very greatly increased. The Navy has to protect the food supplies which must come to our country, or we should have a starving population. A great many years ago only luxuries had to be protected, but now

it is the absolute necessities of life; it is bread and meat, and, what is more, the raw material. I am perfectly certain of this, that the next paragraph of the lecture strikes home. He says that if the naval officer, the admiral, or whatever he may be, in command of a fleet, knows that his base is protected, and knows that it is perfectly safe, he will not have to look over his shoulder to see whether he is all right before he does his duty in attacking the enemy. There is only one more point which I wish to touch on. The last speaker made a remark which I think requires a little explanation. He says that any employer who declines to employ a man because he is in the Reserve should be subjected to a heavy fine. You may depend upon it that the employer will always, and necessarily, employ the best man that he can get to do his work. That work is not only his work, but your work. Supposing, for instance, that a gun manufacturer has a contract to make a certain number of powerful guns; supposing that a fault is made in their manufacture and a tremendous accident occurs. You turn round to him and say, "Your gun is faulty; why is it?" "Because you have compelled me to employ a man who is not up to his work." I think these matters cut both ways. I am perfectly sure that employers do all they possibly can to employ those men who have been through an amount of discipline in the Army or the Navy, and are fit for the work. At the present time, I think that the old pensioners carry the field for the simple reason that an employer has a man's pension at his back as a guarantee that he will do his work faithfully and well.

Major MARSHALL-WEST:—May I say that Admiral Sir Edmund Commerell was evidently not present at the discussion referred to, when it was stated that an employer of labour in Ireland actually put up a notice to the effect that "No Militiamen need apply"; and, moreover, that I never contended for a moment that employers of labour should be bound by law to give work to Militiamen or Reservemen irrespective of their capabilities, but that, as suggested in the lecture, they should be prevented from refusing work merely *on the ground of their military service.*

Colonel J. A. FERGUSSON, *p.s.c.* (Professor in Tactics, Royal Military College, Sandhurst):—The lecturer is one of my oldest friends. I have known him for thirty-five years, and he has asked me to say a few words. I knew when I was told he was going to lecture that we should only hear good sound sense from him. I think he has given us a very valuable paper, and I only hope that the authorities will study and digest it well. But although in the main I entirely agree with Colonel Legard—as I agree with his premises, and with a great many of his conclusions—may I, just in two or three words, say where I differ from him? In the first place, I think it is unfortunate that he uses so often the expression "General service" in a new sense. General service has a very definite meaning in the Army—it has not a very savoury sound to a soldier. I think, if instead of using the expression "General service," he would say "service anywhere," "service at home or abroad," or something of that kind, it would be better. Although, in the main, I agree with Colonel Legard, I doubt the wisdom of putting battalions perpetually on foreign service. That is the one grave doubt that I have with regard to his lecture. Would it not be wiser to revert to something like the old system of having a strong depôt to feed the foreign battalions? The depôt ought to consist of the cream of the non-commissioned officers, and the pick of the officers, and instead of being a place which would be looked upon as a "loaf," it ought to be a place where everything is done perfectly. I see no reason why, if the depôt is strong enough, a soldier could not get just as good training there as with a battalion. By all means keep the battalions linked as they are at present, but I do hope the fatal system of making the home battalions feed the battalions abroad will disappear. People talk of compulsion with a kind of horror, but if men will not render the service to their country, which is their duty for their country's defence, without compulsion, then compulsion they must submit to. I maintain, as I have main-

tained before, that it is the duty of every able-bodied man in the country to render service to his country for his country's defence in some shape or form, either as a soldier for short service—two years if you like—and then service in the Reserve or as a Militiaman or Volunteer. In some way every able-bodied man, every man not disqualified by the doctors, every man not found physically unfit, ought to feel it his duty, and his duty ought to be universally acknowledged, to make himself fit, in case of need, to defend his country. If we cannot get this in some other way, then I think we must get it by means of the old Ballot Act for the Militia. Let me repeat once more what the terms would be. If the Ballot Act was enforced, as it was originally proposed, it would simply mean this—that every able-bodied man in the country, if he did not serve the Crown in some other way, would have to put in four trainings in the Militia between the ages of 18 and 30—surely not a very severe condition. If we had the Ballot for the Militia there would be no difficulty in maintaining an adequate force. I think, considering the enormous stake the country has in every part of the world, that our military forces ought to be five times as great as they are, and if we had the Ballot for the Militia (enforced to whatever extent Parliament chose) there would be an enormous increase to the trained men of the country, and in case of need there would be no difficulty in getting regiments on service up to their full strength. It is often said that every man, after doing his seven years with the colours, ought to be guaranteed employment by the country I think we ought to encourage men more to extend their service to twelve years, and that the principle should be recognised that after he has rendered twelve years' service with the colours the country should be bound to find him employment; but I am unable to see that a man who serves for so short a time as seven years has established a claim on the country for employment. I think we ought to give the men every inducement to extend their service by increased pay, and give still further inducements to the men whom commanding officers wish to retain to re-engage for pension. The actual details of the pension are too lengthy to go into.

Colonel A. HUME (King's Own Scottish Borderers):—I only wish to speak a few words on one point of the lecture. It has been my experience that employers of labour are disinclined to employ men who belong to the Militia on account of their temporary absence for training, and a Militiaman who obtains permanent employment will almost certainly buy his discharge. Something may no doubt be said from the employer's point of view, but for us it is a very serious difficulty and a point to be kept in view and considered. But for this I am sure there would be no difficulty in keeping Militia regiments up to their establishment.

The CHAIRMAN (General Lord Chelmsford):—Before calling upon Colonel Legard to reply to the different points which have been alluded to in this discussion, I think it would be only fair to him that I should make my remarks first, in order that my objections to some part of his scheme may be added to those which have already been put in. Before doing so, I wish to congratulate Colonel Legard upon the very clear and fair way in which he has brought out the different points connected with his scheme. We may differ from him materially on the foundation of his scheme, and we may differ from him in the details of his scheme, but I think everybody will admit that, according to Colonel Legard's lights, he has made out a very workable scheme. Whether it is advisable to adopt that scheme or not is a matter for individual opinion. I wish to point out what I think is the spirit in which Colonel Legard has written this lecture, that is where he states:—"My object in reading this paper is not to attempt to lay down a cut-and-dried scheme, for which, indeed, I am not presumptuous enough to claim either the ability or knowledge." That shows the modest way in which Colonel Legard has approached this very important question, and I am sure we are all very much indebted to him for having given us an opportunity of discussing it. I will not go through the different points where, perhaps, I should be inclined to

differ from him, but I will only take the main point of objection which I have. It is with regard to the organisation of the Line battalions abroad, and the Line battalions at home. In our country the battalion unit is the one point, in my opinion, to be considered. Battalions are necessarily scattered about. Aldershot is the only place where there is any force that can be dignified by the name of a division, and it is not a division according to the foreign acceptance of the term, as its battalions change every year; the officers of the staff are constantly changing, and it is merely a division for instruction, and nothing more. If we attend to the individual battalions, and do our best to make those battalions efficient when the time comes that these battalions have to be put together into brigades, divisions, and, if necessary, army corps, we shall have no reason to complain of their efficiency as a fighting force. It has been lately said that the long-service system broke down in the Crimea. I wish to challenge that statement. The long-service battalions did not break down, but the long-service system failed because no provision had been made by the authorities to replace the men who died in the service of their country, or were invalided home from the severe duties which they were called upon to perform. Although I am not one who would wish to return in any way to the long-service enlistment, still I do hope that in any changes that may be brought about opportunities will be given to any man after serving seven years to re-engage for five years more, and if then physically fit, to serve on for pension. I am quite satisfied that by that means we shall have again efficient battalions serving at home, full of that *esprit de corps* which is maintained with such difficulty under the present system. It is on the point of *esprit de corps* that I take exception to Colonel Legard's proposals for the foreign battalions; where officers and men are changed so frequently the identity of the battalion itself would be lost, and it would be almost impossible to keep up its *esprit de corps*. The case of the Rifle Brigade battalion alluded to by Colonel Legard does not seem to be an analogous one, as, although there perhaps might only remain the mess-plate to represent the original composition of the battalion when it first went on foreign service, still its identity during those seventeen years of absence was never lost, and it no doubt retained that *esprit de corps* which is always found so strong in the Rifle Brigade. It has never been denied that our battalions serving abroad are efficient fighting units; it is the home battalion system that we want to improve. Unless those battalions are strengthened in numbers, and are allowed to have a larger proportion of re-engaged men in their ranks, I do not see myself how those battalions can ever be made really fit for active service, even under the present system; under the scheme proposed by Colonel Legard, however, in my opinion, they would be even more inefficient. A two-years enlistment would mean that all the home battalions, in the event of the Reserves being called out at a time of a serious national emergency, would practically be made up entirely of Reservist rank and file, many of whom would have been for a very long period of years absent from all military discipline and instructions. Colonel Legard no doubt contemplates periodical training for all Reservists; but I question whether such a scheme could possibly be carried out. I will not detain you at this late hour, but will ask Colonel Legard to reply to the criticisms which have been passed on his scheme.

Colonel J. D. LEGARD, in reply, said:—I must first thank you, my lord, particularly for the very good-natured way in which you have been pleased to criticise some of my suggestions. I shall not be so presumptuous as to differ from an officer with so long an acquaintance with these matters, but I should just like to point out one important point which, I think, has not been made sufficiently clear in the remarks you made just now. Of course a great deal may be said for long service and short service, for one or the other, but I may point out that in the suggestions I have made for reducing the service to two years it differs very widely from the existing state of things. Every man who passes into the Reserve during his first period of Reserve service goes up annually for from

twenty-one to fifty-six days' training. These men having served two years in the regiment, having come up every year, up to five years, for training, would be very much more efficient than the men who now go to make up the Home battalions for war. I do not at all depreciate the value of the regimental system, and in saying that, I would like to allude to what fell from Major-General Dashwood. I do not in the least underrate the advantage of *esprit de corps* and discipline, and it may be argued that what I propose—changing officers and non-commissioned officers between the home and foreign battalions—may to some extent be liable to do away with your present excellent discipline. I would point out, however, that that is what has been going on for many years in the Royal Artillery. In the Royal Artillery officers and men have been interchangeable for years between home batteries and foreign batteries, and I should be very sorry to think that the discipline or *esprit de corps* in the Royal Artillery was in any way inferior to that of the best regiments of the Line. But as regards the linked battalion system, I must confess, that looking at it as a whole, I am, personally, strongly in favour of it. I believe it is the only system by which you can get an adequate Reserve, and, at the same time, connect your battalions with the districts from which they come, and the only way in which you can maintain your territorial connection. Although it would be a great pity to, in any way, lose the present regimental traditions, yet I cannot help thinking that in due time those traditions will apply just as well to linked battalions as they have done in the past to certain individual battalions, and that, at the same time, you will maintain your strong territorial connection. I look forward to the territorial connection to a very large extent taking the place of that purely battalion *esprit de corps*, which has been so useful an instrument of discipline in the past. I do not think there are many other points of importance to which I need allude. Colonel Stewart pointed out very justly that the population of the Highlands was not sufficient to maintain a large number of Highland regiments. That is a thing very much to be deplored. We wish the Highlands were more populous than they are, but at the same time it is a very well-known fact that Highland regiments do not contain a large proportion of Highlanders, even if they contain any Highlanders at all. Colonel Stewart also took exception to my saying, that battalions when they first arrived in India are more or less inefficient. I think what he said rather supported my argument, because he also told us that he and one or two other officers had had previous experience in the country. I have no doubt it was due to their presence in the battalion that the battalion found itself so efficient. I wish everybody in this room and outside this room may hear what has been said by Sir Edmund Commerell as to the possibility of invasion. I believe that is a point we want to bring home to the country. One speaker asked if it were thought possible that we should have conscription in this country. My belief is, that if we get the country to believe that without conscription or ballot, or some form of compulsory service, invasion is possible, there is no doubt whatever that we shall have compulsory service. I have only to thank my audience for the very kind way in which they have listened to my remarks.

# THE TRAINING OF THE MERCANTILE MARINE.

*By WILLIAM ALLINGHAM, Joint Author of "Practical Navigation."*

Tuesday, February 8th, 1898.
Vice-Admiral Sir NATHANIEL BOWDEN-SMITH, K.C.B.,
in the Chair.

TRAINING of seamen, sailors and firemen, is practically unknown in carrying-craft under the British flag. Anyone is good enough for either class. A man-of-war sailor is trained from youth to manhood. A merchant sailor has not any training worth mentioning. I would strongly recommend a careful perusal of a paper by Captain J. McKirdy, R.N.R., entitled "Our Seamen," which he read at the London Shipmasters' Society in 1890. Having had experience of sail and steam, and being the marine superintendent of a large shipping company, his words are deserving of most serious consideration:—"By far too many are ready-made sailors, or nearly so, before we see them at all. A trip to sea as cattle attendant, stowaway, shilling-a-month man, or as a passenger, is sufficient to give them a start. They hang about the docks as substitutes, in case someone may be short-shipped in a vessel sailing, and jump on board to tender their services for the vacancy. It may be for cook, steward, fireman, or sailor—it makes no difference to them. They have been to sea before, and that is a guarantee they will not be sea-sick. Time presses and the ship must sail, and, as it is better to have a green-hand on board than no hand at all, the bargain is soon struck, and the novice of the morning is transformed into a seaman, fireman, or trimmer, as the case may be. If he behaves himself at all decently on the voyage, he is discharged with V.G. for character, and G. ability; thus, equipped with a discharge, he takes his place among his fellows, and soon feels quite at home in his new career." Is there any cause for surprise that Lord Brassey should refer to such men as an undisciplined rabble? The Royal Navy must depend principally upon youths trained by warship discipline. Good seamen are still found in large liners, and in certain classes of sailing-ships, but the average deck-hand is faithfully described by Captain McKirdy. Once upon a time, the man-of-war sailor was just what the merchant seaman is to-day. Training and the kindly interest of officers of every rank have raised him to an immeasurably higher social plane than his unfortunate brother of the mercantile marine. If anything, the latter has sunk still lower in the slough of

despond as the years passed away down the avenues of time. Another cause which must tell is the almost utter absence of religious services in carrying-craft.

Anyone, I repeat, is deemed good enough for seaman or fireman in the large majority of our merchant-ships. Moreover, the V.G. discharge is often given to inferior men; and, even were other characters given, voyages are so short that a man simply tears up one discharge and falls back on a previous one either of his own or of someone else. Continuous discharges and ratings will not be tolerated by the large majority of ship-managers. Even a suggestion of four years' sea-service being deemed absolutely necessary from an A.B. has been laughed to scorn. This would be an interference with the law of supply and demand. The minority of the Manning Committee was dead against any recommendation to establish a scheme of rating for seamen and firemen, while admitting that it is to the interest of shipowners to employ none but able and competent men. Surely men who have passed proper examinations, as, in the Royal Navy, are more likely to be competent than those picked up haphazard. I cannot believe that any man who has had experience of a British war-ship and proved acceptable to his officers, would ever care to remain in the forecastle of an ocean tramp. He would be free from disciplinary restraint it is true; but he would not have canteen, library, school, amusements, religious instruction, thorough training, and that interest in the seaman's welfare which is so marked a feature of the Royal Navy. Lord Charles Beresford, addressing the trained cadets of the "Conway," told them that "when they came to command ships they should always think of their men, with whom they must be very just, as well as strict; and, in this way, they would gain the men's respect. They should do what they could to elevate their men, and let them see they were thinking of them and studying their comfort, as well as looking after their discipline and their work." Masters who sneer at the incapacity and immorality of seamen will do well to bear this in mind. Our seamen are untrained, and we cannot expect perfection from men who are kicked from pillar to post. I do not, however, agree with Lord Charles that every merchant sailor should serve a term in the Royal Navy. Evil communications corrupt good manners, and it is to be feared that this wedge of conscription, if driven home, might burst asunder the pleasant ties which now bind officers and men in the Royal Navy. Untrained men are difficult to deal with, and the large majority of our merchant seamen and apprentices are destitute of training. A Liverpool shipowner, Mr. A. Guthrie, at a meeting of the Mersey Missions to Seamen, indicated how great a change can be effected in the condition of sea apprentices even under most unfavourable conditions. The Rev. J. Fell went out to San Francisco, California, and threw his whole soul into the work of stopping the disgraceful desertion of premium apprentices from British ships. In the years prior to Mr. Fell's arrival at the port, eighty apprentices per annum deserted. He has almost stopped this national disgrace. Whoever cares to go into the desertions at San Francisco, California, enlightened by consular reports, will find a sufficient reason for much of the slovenly seamanship and mutinous spirit of the

men who form the crews of British sailing-ships. Untrained men, such as these, smarting under manifest wrongs, are scarcely fit for British war-ships in the hour of danger.

Training-ships around our coast afford far better training for forecastle hands than is obtainable at sea. Boys from the "Indefatigable" in the Mersey, the "Wellesley" in the Tyne, and some others of the same class, are deserving of warm praise. Some mistaken persons imagine that the sea is a first-rate place to reclaim vicious youngsters. This is an erroneous impression fraught with disaster. Good conduct is even more essential in the sea-going youngster than in his brother on shore where policemen abound. The "Indefatigable" suffers somewhat in reputation, because she is moored between two reformatories, and the boys' uniforms are similar. Yet, as Captain Hicks, of the "Akbar," once pointed out, English shipowners and masters only require boys with premiums. "I can't combine philanthropy with business" is said to have been the answer made by one shipowner when asked to take a throughly-trained youngster from the "Indefatigable." A very great difficulty is experienced in getting "Indefatigable" youngsters to sea. They have to go at low wages, find men getting four times the money although only half as capable, and are thus led to desert. And yet I will back an "Indefatigable" boy, in the higher standard, to beat the fourth-year premium apprentice, except old "Conways" and "Worcesters," both in navigation and seamanship. One has been trained; the other has merely done time. In 1896 there were sixty-seven "Indefatigable" boys who went into the mercantile marine, all in British ships apparently. The report of Captain J. Macnab, R.N.R., examiner in seamanship, is invariably pleasant reading. A premium apprentice, whose parents have paid £50 for him, does not enjoy an appreciable percentage of the advantages afforded by such a ship, either in theory or in practice. Taking twenty-five premium apprentices of any firm, I doubt very much whether two would pass in the first-class advanced stage, and ten in the elementary stage, of Science and Art Navigation. Yet that is not by any means a record for the "Indefatigable." Captain Bremner and his staff may well be proud of the results, for they surpass shore schools working on rather better material.

Stationary training-ships for forecastle hands around our coast will do more good for the nation by putting all their boys into the mercantile marine. The Royal Navy can very well look after itself. Moreover, I hold that every youngster on such a ship should be trained either for sailor or fireman. Many become bandsmen, tinkers, tailors, and labourers; but not one half follow the sea. Band-boys and all the other classes are better trained on shore. The sea is for the seaman. In 1896 about 760 boys went to sea from the stationary training-ships. They certainly did not go into British merchant-ships; for, according to the recent report of the Registrar-General of Seamen, there is only about one half that number of boys and ordinary seamen under the age of sixteen in British cargo-carriers. Boys from reformatory-ships cannot be compelled to adopt a sea life. There is not any power in those who control refor-

matory and industrial schools to increase the number of boys who go to sea, should the boys or their parents object. Compulsion will not avail us much in the matter of seamen. Boys must hear the sea-shell distinctly murmuring in their ears. For my own part, the forecastle of to-day, a veritable Tower of Babel, is not likely to retain British-born boys. In some ships the master does not enter it throughout the voyage, and even the apprentices' berth is an unknown land to him. As Commander W. Dawson, R.N., once said in this building, if our seamen are as bad as painted, not they, but the systems of training are at fault. A large number of the more respectable are driven out of certain classes of British merchant-ships, "because some of the services in the mercantile marine are so conducted that it is impossible for self-respecting Englishmen to serve in them, and therefore they find employment elsewhere. Improve the management of crews in the mercantile marine, and respectable men need not be driven out." Where training is absent, there insubordination is almost certain to be found.

The very best combination of theoretical and practical training for officers is afforded to the cadets on board the self-supporting stationary school ships "Worcester" (Captain D. Wilson-Barker, R.N.R.), moored off Greenhithe, and the "Conway" (Captain A. T. Miller, R.N.) in the Mersey. To the endeavours of Mr. W. M. Bullivant is due the conception of a nautical training college for the Thames. He prevailed upon shipowners, the late Mr. Green and others, to assist; the Admiralty lent a ship; and for nearly forty years Mr. Bullivant has endeared himself to hundreds of cadets by his labour of love as honorary secretary. As the Right Hon. T. Milner Gibson once aptly said, "It used to be the idea that a sailor need have but little education, that he had to be a rough and ready man, little refined, having no knowledge of the higher branches of education; but a good hearty constitution, and capable of undergoing great fatigue, and with a brave and gentle heart. But I am prepared to contend that there is no order of men in this country who require so good an education as the class usually designated as sailors." Nearly forty years have elapsed, and, apart from these ships, the training of officers is, comparatively speaking, not one iota better, if we look upon the changed conditions of education on shore. The instruction on board both ships is of the very highest character in everything pertaining to the practice and the theory of nautical matters, in addition to a sound English education. Cadets from these ships are holding important positions in every part of the world.

Under Lord Brassey's scheme, Messrs. Devitt and Moore have three sea-going training-ships for officers, the "Harbinger," "Hesperus," and "Macquarie." These vessels are in the Australian trade, and are well known as excellent of their class. The "Macquarie" has forty midshipmen; the "Hesperus" and the "Harbinger" but twenty-five each. An experienced officer of the Royal Navy conducts the school work. Navigation, nautical astronomy, and practical seamanship are actually taught these youngsters when at sea. In port, nautical surveying is practised. Out of school hours lectures are given in navigation,

electricity, marine engines, ship construction, ambulance work, meteorology, and physical geography. If blessed with plenty of this world's goods, and a boy of mine wished to become a merchant-officer, I would send him for two years either to the "Conway" or the "Worcester," then transfer him to one of Messrs. Devitt and Moore's ships, and rest content. If he did not turn out well, then there must be something radically wrong in himself which money would not obviate. This royal road is paved with gold.

It has become the fashion to deride officers and seamen of the British merchant navy who happen to have been born in the United Kingdom. At the same time the foreigner is extolled for his virtues by those who are, with set purpose, blind to his many faults. The foreigner has at least one recommendation. Owing to the lower standard of living on the Continent of Europe he is able to undersell the unfortunate Britisher, save money, and return to spend it in the fatherland, where the purchasing power of a sovereign is much in excess of that over here. We shall be told that the foreigner in British ships receives precisely the same wages as one of our countrymen. This must be freely admitted. It could not well be otherwise. Nevertheless, by undue preference for the foreigner, the rate of wages is reduced much below what would be the normal were none but Britishers employed. Foreign shipowners actually train the seamen for British ships; the demand is for able-bodied seamen only; and training is almost absolutely unknown under the red ensign. Consequent on this demand for men made on the Continent, our fellow-countrymen have been compelled to undergo adverse criticism in order, as it were, to excuse this unpatriotic preference for foreigners, and utter neglect of training by British owners. Undoubtedly there is a certain amount of truth in the curious newspaper articles which appear from time to time, and the statements made on festive occasions. Yet the writers and speakers almost invariably ignore the fact that the neglect of training is at the root of the whole matter. The seaman of to-day is what his employers have made him. In the Royal Navy there has been continuous improvement, and officers of every rank take an interest in their men. In the British merchant navy sailors and firemen are on the down grade; and only in the large lines, as a general rule, does an officer regard them as having a soul to save. Environment is a factor in the training problem not lightly to be despised. It is dead against the men in cargo-carriers. How can England dare hope for sterling seamen of British birth unless her youngsters are induced to join and are thoroughly trained?

The late Admiral of the Fleet Sir G. Phipps Hornby, dealing with the vexed question of the supply of seamen, in the *Times* of 9th June, 1894, pointed out that "shipowners complain that they are obliged to employ many of these foreigners as mates, and even as captains, for want of competent Englishmen." No more damning condemnation of the present unpatriotic system of manning the merchant navy has ever been made. There is a large fleet of sailing-ships, belonging to Scotch owners, taking every advantage of the prestige of our flag,

on board of which none but foreigners are carried. One of them, at San Francisco, California, dressed with flags, caused a newspaper reporter to visit her under the impression that an event of importance to England was being celebrated. He was disgusted to find that only the red ensign was British, and that the crew were congratulating themselves on something "made in Germany." Just two years after Admiral Hornby's letter, the world's naval architects met at Hamburg. There, Mr. Martell, of Lloyd's Register, ventured to express an opinion that "although German sailors are not so highly paid as British seamen, they are certainly better handled, they are under better discipline, and do their work better." Mr. Martell did not give the name of his informant. In 1895, Lord Brassey told the House of Lords that sterling British-born seamen are "still to be found, and first-class steam liners are always well manned; but the crews placed on board foreign-going sailing-ships are sometimes little better than an undisciplined rabble." Many ocean tramp steamers are on all fours with the sailing-ships. Trained men who know their business, naturally gravitate to lines where their services are appreciated, and where the foreigner is unknown. Let me indicate how preference for foreigners may arise. Mr. J. Stanley Mitcalfe, of the North of England Protecting and Indemnity Association, has unwittingly supplied a key to the riddle. "If the patriotism of British shipowners be appealed to," said he, "it must not be forgotten that there are two sides to the question, as a considerable percentage of our tonnage is owned by firms who have foreign connections, or are of foreign origin. We owe much of our success in the past to enterprising immigrants who have made this the country of their adoption." Reading between the lines, a reason for the preference of foreign crews and the absence of training in British ships is revealed. "We may not speak of England; her flag's to sell or share." Would that Rudyard Kipling's soul-stirring "Ode to the English Flag" were printed on the copy of the articles placed in the forecastle of every British ship!

Those who are ever eager to revile British-born seamen, regardless of the fact that they are living examples of callous neglect of training, always disregard the large lines. It serves their purposes to look only upon the "undisciplined rabble" referred to by Lord Brassey. Where Jack is properly treated, there he is British throughout. Firemen are perhaps more awkward to deal with; but this, again, is due to want of training, inasmuch as they go to sea when of mature years. The testimony of our large lines is invariably favourable to British-born seamen. Anyone who has read the various contributions to this important subject made by Commander W. C. Crutchley, R.N.R., and Commander W. F. Caborne, C.B., R.N.R., will find them both highly eulogistic of their own countrymen. Fortunately, we have such officers still among us. Captain A. McLean Wait, Marine Superintendent of the Union Line, mentions that "the Union Company's steamers are manned exclusively by Britishers, and the management finds no difficulty in getting and keeping good men." Captain F. M. Tuke, R.N.R., of the

Orient Line, expresses in a few words just how the discipline of large liners is maintained. "You must in the first place get British seamen, and in the second place you must treat them well. Given these two conditions you will have no difficulty. British-born seamen always take an interest in their work. They don't walk—they run. You won't get foreigners to do that." And yet a shouting section of the community is ever ready to revile their own countrymen. Captain J. McKirdy, R.N.R., of the Shaw, Savill Company; Captain J. C. Robinson, of Sir Donald Currie's; Captain E. R. McKinstry, R.N.R., of the White Star, and many others are uniformly impressed by the good behaviour and ability of British-born seamen in the large liners. Captain Thompson, of the White Star, will not ship a foreigner, because he wants "the best sailor for all weathers, and in that respect the Englishman has not his equal anywhere." Curiously enough, one of our near kin across the sea, Captain Jamison, of the American Line, has freely borne witness to the fact that "there is not a better sailor in existence than the English sailor." Hence it follows that training tells to-day just as much as in the early days of the Victorian era, when the screw-propeller was below the horizon of progress. As to the "undisciplined rabble" of sailing-ships and ocean tramps, they are but the result of a pernicious system, are principally foreigners, cannot in any way be relied upon as a reserve, and may in the years to come prove a positive danger to England. It would be downright cruelty to place an untrained tramp seaman on board a war-ship, where every man knows his billet. Even if, as alleged, seamen and officers of Continental origin in British ships are superior to Britishers, it naturally follows that this difference is due to the better education and training of the average foreigner. Bearing in mind that the best foreigners do not desert to British ships, there is room for fear lest the red ensign of this country may be put to shame in the ports of the world, not so much by war as by the arts of peace. Turn we now to our future officers in carrying-craft.

The fleets of the British merchant navy are made up of all sorts and conditions of ships. Absence of training of the officers is about the only feature common to the large majority. It is most illogical to omit training, yet expect to produce educated, reliable officers. Let me put the case this way. Take a youngster from the upper form of a grammar school, fairly familiar with the classics and mathematics; send him for four years to live in a country cottage cut off from the civilising influences of pedagogue and parson; feed him on the usual labourer's diet; compel him to do the usual labourer's work; and he would then be as ignorant as the premium apprentice similarly housed, fed, and neglected on the deep sea. There are many sailing-ships where the master never enters the apprentices' berth or has them aft for instruction throughout the voyage. In ports abroad the youngsters not infrequently go to the dogs. Looking back on my own career, I cannot believe for one moment that the average youngster, fresh from a twelve-month voyage, will care to grind at a school all day when at his home. Even if he were so minded, and a midshipman, R.N.R., how is it possible for him to put in his drill and pore over books

at the same time? Every scheme based on shore tuition of apprentices, under present conditions of service, will not benefit sea-farers; and I submit that it is the nautical profession with which we are first concerned. This point cannot be insisted upon too strongly.

Sir W. B. Forwood, in the course of an address on technical education at Liverpool, rightly said that "an artisan in any mechanical trade can almost double the value of his labour if he has a sound theoretical knowledge. It is to me a matter of deep regret that so little attention has been paid to the subject of navigation. It is a disgrace to the country, and especially to a great maritime nation like England, that navigation is so imperfectly taught." By navigation, presumably, is meant every item deemed necessary to make a man competent for command. Sir W. B. Forwood is quite correct. Yet shipmasters of Liverpool waxed indignant over this plain speaking by a well-known shipowner. Apparently they failed to grasp the fact that this disgrace tells more against every shipowner who accepts a premium and does not train the apprentice, or who will accept the ordinary certificate as good enough, either for a collier, or a mail boat, when there are equally skilful seamen to be had who hold the "extra certificate." Our apprentices, paying premiums of from £30 to £50, are too frequently destitute of training except such as they receive on shore from careful crammers—and this not only in navigation, but also in seamanship!

Shipowning firms who accept premiums and ignore their responsibilities are ruining the merchant navy of England. After four years' neglect, finding himself neither sailor nor navigator, unable to heave the lead or take a sight, the youngster seeks the aid of a competent crammer. I have seen a skilful teacher, who had never left the land, coaching junior officers in the art of handling a ship at sea! Some of the men who come before the examiners are sorry specimens. Captain G. Beall, Principal Examiner of Masters and Mates, London, in Departmental Paper No. 187, has hesitatingly drawn a word-picture of the terrible result of neglect. "In several cases in which a special test by dictation has been applied by direction of the Board of Trade, it was found that the candidates could scarcely spell a word correctly, and it was demonstrated, beyond the possibility of a doubt, that they had simply been coached up in the very words, and in those words alone, that they proposed making use of in giving their written answers." He might have extended his deduction quite easily. This is the class of man probably in view of the Liverpool shipowners quoted by Admiral Hornby. Comment is needless with respect to the training in these cases. Who is to blame? I submit that the owner who accepts a premium, and does nothing for it, is the person directly responsible. Stellar navigation, wrote Captain Beall, is "utterly neglected except by the very few," and his reason therefor is literally true. "The great drawback is that seamen, as a rule, do not know the stars when they see them, and from not having the subject brought prominently to their notice, or, more strictly speaking, forced upon them — which is

generally necessary in order to get them to move—are content to remain in ignorance." In other words, the sea apprentice is never shown a star by name. It is our misfortune that we may not know, rather than our fault, and all the pleading of Captain Lecky in his invaluable "Wrinkles in Practical Navigation," will not move the average officer to attempt more than the minimum for a certificate.

Some shipmasters urge that apprentices absolutely refuse to come aft for instruction. This is amusing, were it not so serious. We never hear of refusal when rope-hauling, holystoning, or chipping iron rust is concerned. Yet precisely the same force should ensure equal attention from brain and brawn. A crammer of great experience, the late Mr. W. H. Rosser, author of several standard works, once told me that candidates for certificates never learn navigation now. They merely pay to pass the Board of Trade examinations. It does not concern them to understand the subject, and change is impossible until the examinations embrace both theory and practice.

Whether the system of examination has been attended by results equal to those anticipated by its original promoter, the late Admiral Fitzroy, is at least open to doubt. In my opinion it has not. Probably individual responsibility, if pressed properly home, would have been better. Shipmasters and officers of the British merchant navy have improved in educational matters since the early days of the Victorian era. Yet we must not forget that board schools were then unknown, and shore-folk were also more ignorant than now. Had severe punishment fallen upon shipowners who knowingly sent ships to sea with incompetent masters, a change for the better must have taken place. At any rate, this is certain: our standard of nautical education, gauged by Board of Trade examinations, is considerably lower than that adopted by maritime nations of Europe. Insurance covers a multitude of sins, despite interested assertions to the contrary. One effect of unlimited insurance is to remove the necessity for trained masters, officers, and crews.

Suggestions for officers' examinations were made as far back as the first decade of this century. Every class of the community agreed, except the shipowner—he would have none of it. Matters went from bad to worse, inasmuch as individual responsibility was not enforced by legal penalties. In 1836 came terrible tales of incompetent masters and officers. Nine years later a tentative system of voluntary tests was adopted. Lloyd's thought that the classification of officers would be as beneficial as classification of ships. The Shipowners' Society bitterly opposed any change whatsoever. As might have been foreseen, the voluntary system was a failure. Only about 300 certificates were obtained in two years. Each port was a law unto itself; men soon found where certificates could be most easily obtained; and discussions arose as to the relative value of the certificates. Nevertheless, the voluntary examinations were much more likely to ensure thorough training than those of to-day. Plane trigonometry and mercantile knowledge were indispensable; and the "extra" demanded familiarity with spherical trigonometry, marine surveying, and higher nautical astronomy. A few worked papers in euclid and algebra.

The examination was conducted by two masters who had commanded foreign-going ships; assisted by a scientific civilian, in determining the first and second classes. Ignorance of trigonometry compelled 66 per cent. to be content with a third class certificate—the lowest awarded. After 1st January, 1851, compulsion put in an appearance, and every foreign-going British ship had to have a certificated master and mate before her clearance would be granted. So long as the same certificate serves for a vessel of ten tons, or of ten thousand, there is little incentive to take pains in the matter of training. Examinations may either foster a desire for a sound foundation, or a determination to take it for granted. Under present conditions, almost invariably, the future second officer learns navigation and seamanship from crammers on shore. My old friend Captain E. Blackmore, in his excellent work on "The British Mercantile Marine," has summed up the whole question free from prejudice. "The most mischievous part of the system of examination without any effort to secure sound education is that it has tended to burke primary education, and to teach both parents and children that no special education is necessary until the certificate to qualify for promotion has to be obtained, and has made shipowners as well as shipmasters careless of any kind of tuition of the young men apprenticed to them." Like myself, Captain Blackmore has no row of his own to hoe. We both regret the neglect suffered during apprenticeship. Like the minimum food scale, as Jack knows to his cost, the minimum has been adopted as the maximum. A Board of Trade circular of 1850 called attention to the inferior nature of officers' examinations, recommended officers to study at sea, and suggested to shipmasters and shipowners that sufficient time for the purpose should be granted to junior officers and apprentices. Not the least notice was taken of this circular, and to-day, the training of apprentices and junior officers is almost unknown in our carrying-craft.

What training is the premium apprentice entitled to legally? Turning to the usual form of indenture, I find that the employer covenants "with the said apprentice, that during the said term he, the said master, his executor, administrators, and assigns, will, and shall use all proper means to teach the said apprentice, or cause him to be taught, the business of a seaman." This clause is comprehensive enough in all conscience, but it does not safeguard the apprentice in any way.

What is the business of a seaman? Surely few parents or guardians can be aware of the official definition. A cadet from the "Worcester" or the "Conway" costs his parents or guardians for two years' training little short of £150. The cadet is then apprenticed to the owner of a sailing-ship, who receives a premium of £50 for a three-years term. Extra food, pocket money, clothing, and other expenses, have to be provided during apprenticeship. Yet, so far as I can gather, the ship-owner need not, at the outside, trouble himself to get the cadet instructed in anything more than a forecastle lad would obtain without charge, and who is, moreover, receiving wages all the time. The Assistant

Secretary of the Board of Trade has courteously supplied me with the opinion of the Board as to the "business of a seaman." After pointing out that a seaman is not necessarily a navigator, he goes on to state "that from the point of view of the legal obligation undertaken by the master, the words as they stand bind the master in effect to teach the apprentice a thorough knowledge of theoretical and practical seamanship; *i.e.*, the handicraft and practice necessary for the fitting and management of the standing and running rigging of ships, their spars and sails, the knowledge and practice necessary for the management of ships and boats under all circumstances of navigation and weather, and a knowledge of the right handling and stowage of cargo." In other words, a premium apprentice does not have the least claim to training in navigation and nautical astronomy. If this is the correct reading of the law, then it is high time some alteration should be made in the Board of Trade indenture. At any rate, every parent or guardian should be supplied with a copy of this definition before signing the indenture. A Member of Parliament might be prevailed upon to push this important matter in the House of Commons. It is impossible to learn cargo work under modern conditions, but all the other items mentioned above ought not to require the payment of a premium. I fear Mr. Walker's definition is generally accepted. It would be worth while for some wealthy parent, or some philanthropic person, to test the correctness of this view in a court of law. Mr. G. A. Laws, secretary of the Shipping Federation, says:—"Of course I have no official view 'as to what both classes of apprentices, in steam and sail, are entitled to in the matter of training.' My personal impression would be that a premium apprentice, in sail or steam, is entitled to instruction in navigation, as well as his training as a seaman; that apprentices receiving wages, in sail or steam, are entitled to their training as seamen while on board, with maintenance while on shore; and as far as I know that is all they get." In a large number of sailing-ships the treatment of premium apprentices does not differ in any way from that of a forecastle lad. In fact, some masters believe the latter has the advantage. Unfortunately, boys other than premium apprentices, are seldom even carried. Our young sailors are absolutely cut off from training, as a general rule, in British cargo-carriers. How do they fare at shore educational institutions?

The late Dr. Thomas Masterman Winterbottom, in 1837, founded a nautical school at South Shields, and at his death, in 1859, endowed it with £20,000. It is still in existence, doing good work, under an old classmate of mine, Mr. A. T. Flagg, M.A. Gratuitous tuition is afforded to anyone able to write legibly and work examples in the first four rules of arithmetic, provided he can prove one year's sea service. In the founder's opinion the knowledge of navigation acquired by boys of tender years is seldom retained, and the technical training he deemed desirable included every part of mathematical and other learning which would fit an officer for carrying out the manifold duties of his noble profession. Four nights a week, from October to March,

lectures were to be delivered on mechanics, navigation, hydrostatics, pneumatics, optics, electricity, meteorology, and maritime law. "That most sublime of all sciences—astronomy"—together with geography, brought an extra payment to the instructor for special treatment every Saturday. The public might be admitted by payment of a nominal fee, and private classes permitted out of school hours, but with a satisfactory stipulation that sailors must always be admitted free—"bearing in mind," said Dr. Winterbottom, "that the object of the same school is to render the sailor accomplished in those branches of knowledge which are especially required in the higher stations of his calling, rather than to afford merely elementary instruction which may be equally well obtained in the ordinary schools of the town, and with which schools there ought to be no interference." It is impossible for the modern seafarer to avail himself of Dr. Winterbottom's munificence. After drifting dead to leeward for four years on the educational sea the fair wind comes too late, except for the clipper craft, to reach the destined haven before the date of cancelling the charter. For ten years the South Shields Marine School has had a department devoted to the instruction of youths destined for a life on the ocean wave. It is divided into nautical and marine engineering divisions. Boys over thirteen years of age are admitted after a test examination. Probably more good will result from this department, by training youths, than by attempting to tackle men who will have much to unlearn, provided the youngsters go to sea.

Trinity House Navigation School, at Hull, has an excellent record under Mr. Scaping. Not less than 150 boys, of whom 100 are provided with free tuition and clothing, receive £2 10s. towards outfit on apprenticeship, double that amount if in a square-rigged vessel or a steamer, and a bonus of £1 for each year's apprenticeship faithfully served. Ten exhibitions of £5 each are awarded annually, to be paid on expiration of the first year's sea apprenticeship. Sons of needy seafarers, preferentially orphans, are chosen. They must be 4 feet 6 inches in height, and pass the corporation's surgeon. The curriculum is similar to that of South Shields, as the boys are taught reading, writing, grammar, geography, arithmetic, mathematics, navigation, nautical astronomy, steam, magnetism, the use of nautical instruments, charts, and chart construction. The acting warden's consent must be obtained before a boy can be apprenticed, all indentures are prepared and enrolled by the secretary of the Trinity House at the expense of the corporation. As at South Shields, adults are also taught either for Board of Trade examinations or that they may increase their knowledge of navigation.

Charles II. left funds to Christ's Hospital for the purpose of paying so-called "sea wages" to boys of the mathematical school who went as sea apprentices for seven years. This allowance remains; but the term is now three years, provided the youngster does not leave the sea. A sum of £25 is allotted for outfit in the first year, and a balance of like amount is paid over on the completion of three years' satisfactory sea service, vouched for by the master. The youngster's nautical attain-

ments are on that occasion tested by the head-master. So salutary a rule, in so far as theory is concerned, is deserving attention. An annual examination of sea apprentices by the Board of Trade might effect very much for the mercantile marine. Her Majesty's bounty of seventeen shillings is allotted to every boy going to sea and recommended by the head-master. He also receives a suit of blue clothes, six shirts, six pairs of stockings, a naval cap, two pairs of shoes, several books, and a case of nautical instruments; boys specially recommended receive, in addition, a silver medal. The school authorities appear to take a friendly interest in the welfare of these youngsters during apprenticeship. In fact, it is during this period that sterling advice is most beneficial.

The Hibernian Marine Society at Dublin conducts a boarding school affording instruction for boys desiring a sea life, whether in the Royal Navy or the mercantile marine. Sons of poor Protestant parents, of good character, physically and mentally fit, are admitted between the ages of nine and twelve, with a year's grace either way under special circumstances. They are clothed, lodged, and fed, without charge, until sixteen or seventeen. Sons of deceased, or poor seamen, and none but this class, are admitted so long as qualified and deserving candidates are obtainable. The endowments are for the purpose of maintaining buildings or ships to carry on the technical training, such instruments and appliances as are necessary in navigation and practical seamanship, and to advance in life deserving pupils leaving school, in want of assistance, by providing outfits for them, always giving a preference to boys who intend to follow the life of a seaman. Provided the free boarders are not prejudiced thereby, day pupils are received at the school. The Governors have power to remove the school to a ship, or ships, with the sanction of the Commissioners of Charitable Donations and Bequests for Ireland. An inspector, appointed by the Lord-Lieutenant, visits the school, and reports thereon once a year. Whether the inspector is familiar with higher and broader nautical education, is uncertain. I understand that occasionally an Army officer inspects some of the reformatory ships! It would be interesting to know how many boys proceed to sea from this school and remain there.

The Liverpool Nautical College is unique of its kind. Curiously enough, when the question of nautical education was raised before the Liverpool Town Council, it nearly went to the wall. Only by a majority of one was a resolution passed to authorise the expenditure on nautical education of public moneys set free for technical instruction. Whereas nearly every class of shore employer is urging forward the claims of artisans for technical training, in order that England may hold her own against all comers, many ship-managers appear to desire as little education in an officer or master as is possible. Sir W. G. Armstrong founded night-schools specially for his apprentices and young men. Isaac Lowthian Bell greatly desired a chair for navigation at the Newcastle College of Physical Science in addition to chairs for civil and mechanical engineering. He believed that something more ought to be demanded from the modern men in huge steam-ships than was sufficient for the

short sailing-ships of half a century ago. A serious defence of the preference for uneducated officers at sea would be worth having. Some owners have denied that education and seamanship can possibly exist together. The best class of shipowner, however, is alive to the fallacy involved in this argument. Lord Brassey, when opening the Liverpool Nautical College, about five years since, pointed to defective education of masters as a cause of loss of life and property, and as militating against Imperial interests. Sir W. B. Forwood despaired of nautical education, and Mr. W. S. Graves warned his hearers with respect to educated foreign competition. All three deplored the marked deficiency of training for seafarers. Many managers of small companies have but little capital at risk therein ; and the underwriters cover everything, even to unearned freight. Competition is so keen in the insurance world that individuals accept almost any risk. Moreover, were there not any losses, the underwriter would find his occupation gone. Shipmasters and officers are not slow to perceive that education is rather regarded with aversion by limited liability companies, and adopt the path of least resistance. Nevertheless there are many honourable exceptions.

The Liverpool Nautical College is the only institution of the kind in the United Kingdom, is controlled by the Corporation, and more than satisfies the demand. The tuition branches out into three lines:—for boys intending to adopt the nautical profession; for youths with some sea experience; and for officers of every grade, each class being dealt with separately. The first division is, in my opinion, the most valuable to the profession at large. It takes up arithmetic, geometry, trigonometry, navigation, nautical astronomy, geography, electricity and magnetism, steam and the steam-engine, mechanics, ship construction, and drawing. In addition, the technical instructor, a shipmaster of repute, exercises the youngsters in seamanship so far as it can be carried out by means of shore appliances. They will learn with precision more in this way than at sea. All these subjects are deemed necessary by the authorities for the future ship-master, at corporation cost. Yet, in quite 90 per cent. of sailing-ships, apprentices who pay £50 premium never even hear the names of such items of nautical training. This emphasises the utter failure of the premium-apprentice system. You may subsidise owners for *carrying* apprentices; but, without *training* being insisted upon, it is difficult to see of what use the resulting "undisciplined rabble" would be to England in her hour of need.

The second division for apprentices is not, and cannot hope to be, a success. This is not the fault of the college. All work and no play will make mercantile Jack a dull boy indeed. Those who expect youngsters to attempt working double tides in this way must surely have forgotten they were ever boys. The ship at sea must be the training school for apprentices in both theory and practice. When in ports abroad, like Calcutta, San Francisco, and New York, where sailing-ships lie idle for months, it would be quite practicable to subsidise a school for apprentices, and compel them to attend regularly. Owners and all concerned would be benefited. As it is, the youngsters are occupied

in labouring work, which could just as well be carried on at a farm. Every scheme for training apprentices at home ports has proved a failure. It is expecting too much from the youngsters. The Liverpool headmaster, Mr. J. Gill, has suggested we should copy Continental nations by founding a system of compulsory attendance, after apprenticeship, at a nautical school for a sufficient period at the public expense. I quite agree with my friend that, under present commercial conditions, "unless some scheme of this nature is carried out, the majority of apprentices of to-day will find themselves quite unable to cope with the exigencies of the work of navigating officers of the future." Assuming such compulsion became law, could an officer be certain his post would be kept open for him? I have heard of owners objecting to apprentices joining the R.N.R. on the ground that it interfered with their duties in home ports.

Apart from the cramming classes and the first division for youths, the work of the Nautical College has not been nearly so successful as it may be in the years to come. In 1896 only six students entered for the college examination in magnetism and compass adjustment, and I am not sure that they were all officers. Of these one took honours, one advanced, two a pass, and two failed. The stiff and scientific diploma examination has not attracted so many candidates as expected. The system of tuition by correspondence is capable of extension and widening, as also is the lending library. Nevertheless, when all is said, I am constrained to confess that the demand for higher and broader nautical education must be strictly limited under existing conditions. Liverpool steam-ship owners, following the lead of the sailing-ship owners, have decided to give the preference, when selecting officers, to those holding the college diploma, and agree to give every facility to their officers to attend the classes. What this means is not quite clear. If the officer is to stand off for a long period, studying at his own expense, the result is certain. He cannot afford to remain idle, and the recommendation will become a dead letter. Probably not five per cent. of the men holding masters' certificates could pass creditably for the college diploma. A reliance on first principles, from the very commencement and throughout the whole of a career, is indispensable, having regard to the subjects mentioned in the report.

The Science and Art Department does admirable work for the education of shore-folk. Every effort is made to induce the rising generation to attend classes subsidised by that department. Clerks, mechanics, and others, who never leave the land, can thus obtain instruction, at a merely nominal charge, from October right up to May, after the day's work is done. Unlike those who try to cater for apprentices, the department rightly expects that students require a holiday. Praiseworthy persons who attend these evening classes do not come to learn any particular trade, but to master the scientific principles upon which it is based. Every May, the students who have made a certain number of attendances undergo an examination in selected subjects, and upon the results thereof the educational subsidy of the

department is distributed. A little is also done for seafarers, on somewhat similar lines. Unfortunately, the sailor is too often an untrained bird of passage. Steam has whittled down to a fine point the time spent in a home port. With a few brilliant exceptions, the modern merchant officer is neither able nor willing to study. The department has attempted something in alleviation of his hard lot, but without avail. A fair knowledge of mathematics is absolutely necessary for a Science and Art Certificate in navigation or in nautical astronomy. And rightly so. Still, a first-class honours certificate can be obtained with less mathematical training than would be required to understand Todhunter's "Mechanics for Beginners." Even this small amount is not within the ken of many a navigator. Hence it has been suggested that the department should introduce examinations based upon rule-of-thumb, because, forsooth, the knowledge of a Senior Wrangler is now required. I sincerely trust the public money will never be diverted in this way. Navigation, on paper, is merely plane and spherical trigonometry, with a few nautical terms thrown in for ballast. Consequently, teachers who "taught for the pot" were able to increase their incomes by sending up schoolboys to be examined who had not the remotest intention of going to sea. So serious did this become that the then examiner, the late Dr. Woolley, was compelled to enforce his veto on the papers in navigation worked by youngsters of ten years of age. He rejected nearly the whole of the candidates sent up by certain schools, and was not troubled next year, as the schools threw up the sponge. These paper navigators actually came from inland places. They could earn the grant, and that was sufficient for them to be taught; not that they might know, but that they might pass.

At one time there were sixteen navigation schools subsidised by the Science and Art Department, at a cost of £2,000 per annum. In 1862, however, payment by results was substituted. Thereupon, teachers found cramming for Board of Trade examinations the only satisfactory way to a competency. The neglected education of seafarers in their earlier years positively precluded them from participating in this training. If, as I suspect, the students were neither sailors nor intended for the sea, the action of the department does not require justification. We want trained seafarers. There are many other educational funds for the training of landsmen. It is absurd to suppose that the department could continue payments to teachers who were simply engaged in affording shore youngsters an application of their mathematics in order to earn the grant. Funds misapplied in that way would actually retard nautical training. Very few of the candidates get beyond the elementary stage. Of 252 who were of my year, 1877, 165 were elementary, 80 advanced, and 7 honours. Only two of us took first-class honours, and we certainly did not display the proficiency of a Senior Wrangler. In 1892, payments on results for the elementary stage came to an end. It would be well to refuse payment for anyone who is not in, or about to join, the nautical profession. A more liberal scale for seafarers could then be devised with the money thus set free.

National funds for educational purposes ought not to be exclusively devoted to one section of the community. This being granted, it follows that there is need for a reconsideration of the Science and Art system, which does not help to foster nautical education. As matters stand, the influence for good of the department stops at high-water mark around our coasts. Yet, in my opinion, the sailor of the British merchant navy will either have to be taught at sea or allowed to fall behind in the international race. Navigation and nautical astronomy are not best mastered by cramming long verbal rules, and sticking like wax to one epitome. Even if easier, which cannot be admitted, the disadvantage of rule-of-thumb for the modern mariner is most marked. He who has first taken up elementary mathematics, including trigonometry, will find both navigation and nautical astronomy easy enough. At the same time, he will not experience any difficulty in following a paper on ship stability, or gunnery instruction on board H.M.S. "Excellent," if an officer of the R.N.R. The complicated verbal rules which are alone at the command of men crammed for Board of Trade examinations do not in any way assist in understanding another branch of the subject based upon precisely the same first principles.

Foreign nations on the Continent of Europe have long recognised this fact, and framed their mercantile marine examinations in agreement therewith. Inferior examinations, such as have prevailed over our islands for many years, have had an adverse effect upon the training of officers, and flooded the market with certificates. I understand this is their aim. A youngster who succeeds in passing for a shipwright apprentice in one of Her Majesty's dockyards has to show an acquaintance with algebra and geometry greater than is required for any grade of the British mercantile marine officer. Lord Kelvin once told a Royal Commission that when a youngster learns spherical trigonometry he knows more than all the nautical professors in the world can teach him, except currents and winds, the chances of falling in with icebergs, and under what conditions the longest way round may prove to be the shortest way home. Having first principles at hand, practice comes easy. Training obtainable on board the "Conway," or the "Worcester," or the sea-going training-ships of Messrs. Devitt and Moore, would apparently meet his view of the matter.

Even a cursory comparison between the step by step examination papers of the Science and Art Department drawn up by Mr. H. B. Goodwin, M.A., R.N., and those of the Board of Trade, clearly indicates the vast gulf dividing the reliance on mathematical principles, common to many a science, and rule-of-thumb, useful only for the particular purpose. This is not the fault of the Board of Trade examiners, whose limits are strictly set. The system, not the examiner, is at fault. As long as the Board of Trade examinations are strictly in the art of navigation, but do not touch the theory, nautical colleges must languish. The Board of Trade will not follow the lead of Continental nations in examinations for merchant officers. Why? Because, as Commander Crutchley once pointed out, "it dare not." The very ship-managers who shout so loudly about the incompetency of

British seamen and officers compared with foreigners will not allow either an A.B. rating or stiffer examinations.

I would seriously suggest that the Science and Art Certificates of the first class, in the elementary, advanced, and honours divisions of navigation and nautical astronomy should be accepted by the Board of Trade as satisfying the requirements of second mate, first mate, and master, respectively. Practical navigation, as I understand the term, and seamanship, can scarcely be tested within four walls. If only this plan were adopted, a portion of the Science and Art funds sent seaward, and shipowners of repute prevailed upon to evince a preference for educated officers, the rising generation might take to improving themselves as markedly as their more favoured friends on shore. Liverpool shipowners have agreed to prefer officers trained at the Nautical College, just as the law and medicine accept success at London University matriculation as entitling favourable consideration. Not two per cent. of the present premium apprentices in their final year could take a first-class in the Science and Art elementary stage. Nor will there ever be until there is training at sea. Anyone desirous of ascertaining the kind of questions put before candidates at these examinations will find them worked out by me in the *Nautical Magazine* for each of the past six years.

Notwithstanding the base uses to which the Science and Art examinations were put by a few teachers in inland places and elsewhere, in order to gather in the grants for the training in navigation of boys who had not the remotest intention of proceeding to sea, there are some of my friends who still believe that something can be done on these lines. A rumour is afloat to the effect that the Education Department intends to open classes in navigation at a number of the London evening schools. If every boy who takes up this subject will enter into a bond to become a sea apprentice, I am with the promoters of this system. If, however, the navigation is to be treated as it was years ago in National schools, then my earnest conviction is dead against any such waste of energy. Navigation is but mathematics; hence the youngster who intends to remain on dry land had better stick to his last. Let him learn mathematics as such, not disguised under the name of navigation. Even now navigation is taught to youngsters who have not the remotest desire of seeking salt water. Greenwich School, whence many an excellent navigator proceeded to sea, has something of the kind. The Boorman Foundation was originally for the sons of Thames watermen. The moneys are now spent on training youngsters in nautical subjects who eventually become clerks in City offices. I have only come across three boys from this foundation, and all three are in shore employment. Surely some stipulation might be enforced, making a sea life compulsory on every boy who accepts a place in the school under this head. There would be little difficulty in giving instances where funds left for *bonâ fide* seafarers have gone over to landsmen. London has tried night classes for young navigators at the People's Palace. The secretary asked my advice, and I predicted dismal failure for them. Experience proved that the sea apprentice preferred a short interval, and remained away from the classes, which were eventually taken off the list.

While British owners have sat still with folded hands, the United States has boldly grappled with the difficulty. The Secretary of the United States Navy is empowered to lend Boston, New York, Philadelphia, Baltimore, and San Francisco a suitable ship for sea-going training purposes, together with her fit-out, and to detail naval officers as superintendents and instructors. The local authorities agree to keep the ship running, that she shall not be in any sense a reformatory, and returned if no longer required. Shipowners and others connected with the United States shipping industry at Boston, New York, and Philadelphia have accepted these terms. I have visited the vessels, examined several of the youngsters, seen the papers worked by the boys, and can only regret that such ships are not under the British red ensign. They afford free technical training of a high order to youngsters desiring to serve in ships of the Great Republic's mercantile marine, in much the same way as Messrs. Devitt and Moore carry out Lord Brassey's scheme for British boys at the sole expense of their parents. New York has the "St. Mary's," a corvette of 1,025 tons displacement; and Philadelphia runs a sister-ship, the "Saratoga." The guns have been removed, and the rig assimilated in a great measure to that of American sailing-ships. In other respects there is little to differentiate them from the U.S.S. "Alliance," training-ship for boys of the war navy, on board which I recently spent a few days as the guest of Captain J. McGowan, U.S.N.

A careful scrutiny of these training-ship youngsters destined for the American merchant service, convinces me that they are quite comfortable, well fed, and diligently instructed by the U.S.N. officers detailed for that important duty, in practical seamanship and paper work. At Philadelphia, the commander of the "Saratoga," Captain F. M. Green, U.S.N., showed me with excusable pride the many excellent papers worked by fifty of his flock who had just graduated after remaining on board for the full term of two years. They would have delighted the heart of a Royal Navy examiner. Neat diagrams were given with nearly every answer. The instruction embraces almost everything an educated sailor requires to know. Here we have theory and practice closely united, as they ought to be—not divorced, as in the overwhelming majority of British merchant-ships. Similar training is afforded by the "St. Mary's." A year's work in these vessels includes a voyage from the home port to the Azores, Southampton, Cherbourg, Lisbon, Gibraltar, Madeira, and home; followed by a winter cruise to the West Indies. While in the home port commercial education is to the fore, such as history of the United States, English grammar, mathematics, and the theory of navigation.

Candidates for admission must be between the ages of 16 and 20, able to pass a strict medical examination, long for a sea life, be of good character, and pass an elementary education test. Parents or guardians have to provide a small sum for outfit, as the boys are dressed man-of-war fashion. Food and tuition are free. The cost of keeping up such a ship is about £5,000 per annum, and she can carry 100 scholars, together with the necessary officers, petty officers, and seamen. Corporal punish-

ment is unknown; stoppage of leave proves a deterrent; and, as the officers are on the United States Navy active list, war-ship discipline is approached as nearly as possible.

The "Enterprise," Boston's training-ship for the mercantile marine, is conducted on rather loftier lines. She is a barque-rigged steam cruiser of 1,375 tons displacement, and trains both for the executive and the engineer branches. In addition to the captain, she carries five commissioned officers of the United States Navy. One lieutenant is executive and seamanship instructor; another is navigator and navigation instructor; an ensign is ordnance officer and mathematical instructor; the engineer instructs in mechanics, engineering, and electricity; and the surgeon is responsible for languages. When at home, two civilian instructors assist in mathematics, mechanical drawing, and languages. The organisation of these mercantile marine cadets is based on that of the United States Naval Academy. She had a battery of guns when under Captain J. F. Merry, U.S.N., but I believe they have since been removed to the shore. Last summer I came across a number of her cadets, guide-books in hand, overhauling Westminster Abbey, and had a chat with a son of Massachusetts, who looked every inch a seaman. The cadets' full dress is a suit of blue cloth, the coat trimmed with black braid. Upon the collar is a gold anchor; and the cap has a gold cord on the visor, with a gold anchor surmounted by a wreath on the front. They might easily be mistaken for premium apprentices from British merchant-ships. Upon entry the cadets are allowed to choose between the seamanship and the engineering courses, and are specially instructed in the course chosen. Both divisions, however, attend the same classes in subjects common to them. Sailor cadets are instructed in seamanship, navigation, nautical astronomy, mechanics, engineering, algebra, English, and mechanical drawing. Cadets who prefer engineering are instructed in the theory of ship and engine construction, fuel, lubricants, distillers, various types of engines and boilers, electric fittings, refrigerating machinery, coal stations, duties of firemen and engineers, working in iron and wood, and mechanical drawing. Under the chief engineer's direction they carry out nearly all the ship's work except the cleaning, and are daily exercised in a well-fitted machine shop on board. The regular crew of the "Enterprise" is twenty-four men. There are two mates who keep watch in port, master-at-arms, electrician, boiler-maker, blacksmith, machinist, carpenter, sailmaker, steward, cook, three firemen, three deck hands, and seven messmen. The commissioned officers of the United States Navy are the only other persons on board, except the cadets. On 1st January she had 95 cadets on the books—37 in seamanship, and 58 in engineering. Meritorious lads may remain a third year for special study and practical work. With ordinary care the sum of 100 dollars deposited by the parents covers all a cadet's books and clothing during his two years' training.

Not every boy who joins will remain through the two years' course, and graduate. A few do not intend to put in more than one cruise; others who would prefer to stay find the life unsuitable. This wastage

is unavoidable, and is similar to what occurs on shore. Still, the wholesome discipline and exercise even of one cruise is not thrown away upon them. A number of the graduates from the American sea-going training-ships are holding good positions in ships of different classes. American mail steamers are compelled by law to "take as cadets or apprentices, one American-born boy, under twenty-one years of age, for each one thousand tons gross register, and one for each majority fraction thereof, who shall be educated in the duties of seamanship, rank as petty officers, and receive such pay for their services as may be reasonable." Consequently there is a demand for such well-trained youngsters in the best steamers of the American line, and elsewhere.

I have detained you long enough. Having stated my view that training practically does not exist in British merchant-ships, neither for apprentices nor for sailors, it behoves me to suggest a remedy. In order to ensure a thorough training of seamen, it would be well to compel every ordinary seaman, and every able-bodied seaman, to pass a practical examination in seamanship. By this I do not mean precisely what was understood by seamanship in the days of our grandfathers, but modern seamanship. Men who would do well enough on a steamer, with rudimentary masts, might be positively dangerous in a sailing-ship. This innovation would have a tendency towards improvement. At the same time some inducement should be afforded to shipowners to induce them to prefer the British sailors and firemen before all others. As it is, the foreign ready-made article, "made in Germany," is well to the front. He costs nothing to train, and when done with can be cast on one side as a foreigner. A change in the system of discharges is also necessary. At present a V.G. discharge is often most misleading. If more care were taken to fit the punishment to the offence there would be fewer V.G. discharges in existence. Now we have a curious anomaly. On the one hand, shipowners proclaim from the housetops the incapacity and immorality of seamen in British ships. On the other hand, we have the fact that a bad discharge is quite a rare thing. If a return were called for, I am prepared to forecast that an overwhelming number of seamen possess V.G. discharges. A continuous discharge, setting forth the lawful holder's description, is almost absolutely necessary to ensure trained men. With an examination looming in the future, and a continuous discharge to tell tales, more pains would be taken to learn and to keep within the bounds of moderation. I shall be told that the exigencies of commerce permit neither of ratings nor continuous discharges. Very well, then; trained men are simply outside the region of practical politics, and shipowners must put up with those of Continental nations.

Apart from ratings and reliable continuous discharges, it appears to me that good boys from the stationary training-ships must be a better investment for shipowners who really want trained men than from anywhere else, in so far as forecastles are concerned. Boys are not kept long enough on board these ships in some instances, even when deeply imbued with the romance of a noble profession. Owners will not carry boys; and,

as pointed out by Mr. H. N. Sulivan, a few of the training-ship youngsters are quite out of the running by reason of their puny stature. They would be lost on the yard of a 2,000-ton sailing-ship. A healthy boy, thoroughly trained on the "Indefatigable," for example, is worth considerably more aloft than a youngster fresh from a shore school and his mother's apron-strings. He has been broken in, as it were. By increasing the number of months a youngster may stay on board such a ship—in other words, taking care that he is old enough and strong enough to ship as ordinary seaman directly—there might be more demand for him. Sailing-ships are gradually disappearing from off the high seas, or becoming of enormous proportions. Either way, the demand for boys is naturally lessened. Hence, in the near future, failing sea-going training-ships like those of the United States, we will have to rely more and more upon the training afforded by the stationary ships around our coasts. They turn out youngsters who can steer, heave the lead, handle a boat, and carry out other items of seamanship, all in a proper manner. Black sheep there will be in every flock. At the same time, every boy who leaves a training-ship without going to sea is just so much money wasted, in so far as the nautical profession is concerned.

Coming now to apprentices, we cannot have trained officers unless, and until, a change is made in the indenture form by the Board of Trade. As it stands, the expression "duties of a seaman" is delightfully vague and mischievously misleading. An A.B. of the Royal Navy should know more than an apprentice just out of his time whose parents may have spent £50 on him as a premium, without mentioning the outfit and pocket money. A cadet from the "Conway" or the "Worcester" will have cost his parents or guardians nearly £300 throughout; and, apparently, his indenture only entitles him to be instructed in the duties of rope-hauling. Legally, no doubt, the opinion of Mr. Ingram B. Walker is quite correct. In equity the apprentice has a right to be taught the duties of a junior officer, or otherwise the premium is obtained under false pretences. Every owner who accepts a premium knows full well that more is implied than what could be learnt equally well by a forecastle lad earning wages all the time, and far better by boys in the training-ships. In order, then, to have training of apprentices the Board of Trade indenture must be altered so as to include the duties of a junior officer, navigation, and seamanship. Perhaps the Shipping Federation might bring this before the House of Commons for favourable consideration. As worded now the premium apprentice's indenture is a delusion and a snare.

Next, there is great need for training of apprentices at sea. Without this, any and every scheme of shore tuition is bound to be a failure. At the end of my first four years at sea I can conscientiously say that as third officer of a clipper-ship my knowledge was much less than when at school. Afterwards, when attempting to make up this leeway, I found myself headed off every time. Education to be of any use must be continuous. If those who think otherwise will attempt a Science and Art examination, they will probably have reason to alter their opinion.

Shipmasters must of necessity be the proper persons to train our future officers and masters. I shall be told that either masters do not know enough, or have not the knack of imparting knowledge. Well, Rome was not built in a day. By teaching we learn, and probably but few of the many Board School and science teachers are born instructors. If only sufficient inducement be held out to shipmasters and mates, I firmly believe a start might be made. The sea must be the school for seamen. At present, for all premium apprentices, except those from the "Conway" and the "Worcester," the shore's the thing. Wendell Phillips has well said:—"Education is the only interest worthy the deep controlling anxiety of the thoughtful man." Yet, I have information from former cadets of those splendid ships, and a speech made by an old boy, Captain Hutchinson, R.N.R., confirms it, that much is forgotten at sea. It cannot well be otherwise during a neglected apprenticeship. Some masters actually do teach. My old master, Captain Henry Toynbee, for many years Marine Superintendent of the Meteorological Office, would teach even the man before the mast, provided he cared to come aft in a clean shirt. So great was his influence for good, that I have within the past few years come across three of his former midshipmen, one a Q.C., one a C.B., and one a Board of Trade surveyor. Still later instances may be obtained from an interesting publication by the Missions to Seamen, entitled "Lay Work in the Merchant Navy," which won the Brassey Prize of £25. Captain F. B. Hopkins, now a marine superintendent at Liverpool, clearly pointed out how, where the will existed, the way could be arranged.

Let me suggest a way in which a beginning might be made in the training of officers. The Science and Art Department have only to send seaward the £2,000 which was once paid to shore teachers, but got diverted from its proper course. Consider each ship as a nautical school at sea, in close connection with Liverpool Nautical College as an advisory body; the master, or a responsible officer deputed by him, as naval instructor; and the apprentices as the students. Pay the master or officer; award prizes and medals to the persevering apprentices; and have scholarships for the very best, enabling them to stay on shore for further study at either Liverpool College or the Royal Naval College. I admire the scheme, with respect to scholarships, of Captain A. T. Miller, R.N., of the "Conway," a thoughtful contribution to the literature of the subject, which will be found on page 139 of the *Nautical Magazine*, 1892. He has had experience of both branches of the nautical profession, and knows where the shoe pinches. Let us suppose a ship with six apprentices, and the master, fully alive to his responsibilities, undertakes the duty of instructor, backed by the Science and Art Department, in much the same way as is the shore teacher. In fine weather, during the dog-watch, he will have all six of them aft, and carefully instruct them, to the best of his ability, in technical subjects relating to their profession, which will serve as a foundation for a goodly superstructure in the years to come. I propose that only four separate subjects be taken. They are mathematics, mechanics, navigation, and

nautical astronomy. Apprentices of the first year would take the elementary stages; of the second year, the advanced stages; and of the third year, the honours stages. Of a starry night, in the trades, or running down the easting, much useful acquaintance with aids to navigation other than the sun might easily be obtained. A liberal interpretation of the number of the attendances necessary to ensure the grant, and an earnest appreciation of the many difficulties in the way, would doubtless be made by the Science and Art Department, in order that the sea-farer may get on to an equally satisfactory footing as regards education, as is the lot of youngsters who care nothing for the sea. The fourth year could be devoted to a close study of matters other than the four Science and Art subjects. County councils and technical education bodies would co-operate if only they could see some result worth having. Every year an open competition for scholarships in sufficient number should permit advantage being taken of the higher and broader education afforded at Greenwich and at Liverpool. Shipowners would be benefited by obtaining a more educated body of officers. There must also be inducements held out, not only for masters to teach, but also for students to learn. If some such scheme were devised, it would ensure the training of premium apprentices. As matters stand, the shipowner pockets the premium, and the shipmaster is supposed to exert himself as an instructor for nothing. Human nature steps in here. We do not expect teachers of Science and Art classes to work for the love of it, for patriotism, or anything of the kind. Neither can it rightly be supposed that the shipmaster is of sterner stuff. Every Sunday there ought to be divine service held on board ship. Unfortunately in some lines, trading in the Far East, that day seems specially suitable for working cargo, or going in and out of port. Nevertheless, in many ships Sunday would be far better for everyone if an attempt were made to keep it holy.

Shore schools in home ports for premium apprentices are almost bound to fail. Not so shore schools in ports abroad. Take San Francisco, California, for example. Some of our very finest sailing-ships are there from three to thirteen months, without a break, waiting for a cargo worth carrying. During all this time instead of the premium apprentices chipping iron rust, clearing the limbers, and similar work, they might easily be on shore at a science school. The success of the Missions to Seamen at that port clearly shows what can be done in this way. Found a British school for apprentices at ports abroad where British ships congregate, support it at the expense of the country, use it as an aid to the tuition afforded at sea, and owners mindful of their reputation could be prevailed upon to send their apprentices ashore to school at least three days a week.

Commander J. HENDERSON SMITH, R.N.R. :—It appears to me, listening to the reading of the paper, the author deals more with the education of officers than with the training of boys for sailors. I was in command of the "Worcester" for over twenty-five years, and know that there is no scarcity of well-educated men for officers. The "Conway," in Liverpool, an excellent training-ship, and the

"Worcester," on the Thames, send out a large number of cadets, several of whom have been promoted to junior officers before finishing their first voyage, a proof of how well they had been trained. In addition to these, there are numbers of boys trained on board Messrs. Devitt and Moore's ships, on the system started by Lord Brassey. The boys pay a premium and have instructors, to say nothing of a large number who have a good education, and who go to sea direct as midshipmen, or apprentices. Cadets who were trained on board the "Conway" and "Worcester" are now commanding and officering most of the finest steam and sailing ships of the best lines, and a goodly number of them hold commissions in the Royal Navy and Royal Naval Reserve, many of whom are now serving on board Her Majesty's ships at home and abroad. We want more sailors. I therefore think we should have more training establishments, either on board ship or on shore, for poor boys of good character, and of respectable parents, boys from towns or country, strong, healthy fellows desirous of becoming sailors; not waifs and strays, although poor boys, they have great need of help, and many of them do well at sea. We might have two training-ships, or establishments on shore, in each of our large ports, one for young, and the other for older boys, giving them at the same time a moderate education. In this way, we would soon have an ample supply of well-trained boys to make good sailors of. The Government need not be at all the expense; an allowance might be made from the rates where the boys came from. The parents might assist a little. Goodness knows the shipowners have enough to do in these hard times, without paying anyone to conduct a school at sea. If a captain or officers care to teach boys when they have time, that is another matter. Something must be done if we are to have more and better sailors, such as we had in old times, when every boy going to sea was bound apprentice, and it mattered not whether he had to live with the sailors in the forecastle or aft with the officers. I was bound apprentice for seven years. There were six apprentices on board; three lived with the sailors, two and myself lived aft (called midshipmen now). As to foreign sailors, it is to our discredit that there are so many in our merchant service. I never took them, it mattered not what wages they would go for; I had no difficulty in getting good men. A few days before sailing I had a notice posted up in the shipping office, so many able and ordinary seamen wanted, for such a ship and voyage. Wages 5s. and 10s. more per month than the wages out of the port at the time, but no advance (no foreigners taken). The men came down to see the ship, and where they would have to live. I could always have plenty of good men, and, with a good stock of clothing, they generally went the round voyage with me.

Commander W. F. Caborne, C.B., R.N.R.:—I think we ought to be very much obliged to Mr. Allingham for bringing this very important subject before us this afternoon, although we may not all have arrived at the same conclusions that he has done on various points. Personally, I am rather sorry that he should have commenced his paper by giving prominence to certain allegations as to the manner in which a portion of our sailors are manufactured, as it may not be generally understood that those particular strictures only relate to a section known as "pier-head jumpers," and not to the whole Bad as things are in the mercantile marine—and they are bad—we still have some excellent men left, as I can testify from personal experience. With respect to continuous discharges, I am very much in favour of them; and the recent Manning Committee recommended their adoption, combined with a systematic classification of seamen. Unless some such plan is introduced, needed reforms in the mercantile marine cannot be effected. Mr. Allingham appears to disapprove of Lord Charles Beresford's view that all apprentices in the future should serve for a time in the Royal Navy, and thinks that such a course would be the thin edge of the wedge of conscription. Now, I am one of those who believe that it would greatly benefit the mercantile marine generally if every officer and man in it had to serve for a fixed period in the fleet.

If anything is done in days to come in the way of training merchant seamen, it will be the work of the State, and what is there in the nature of conscription—a word of which the lecturer appears to be afraid, but one that I think has few terrors for us in this Institution—in saying to lads, "We will train you for a seafaring life, but you must do something in return and serve for a time in the Navy." I quite agree with Mr. Allingham that when sailors turn out badly they are often only just what shipowners and masters have made them—in fact, are frequently the victims of circumstances. With regard to the training of what the lecturer terms premium apprentices—that is, of youths apprenticed with the intention of their becoming officers—I hold a very strong opinion that when a youngster joins the merchant navy, say from the "Worcester" or the "Conway," paying a fair premium to the shipowner, and is put to perform dirty work, instead of being taught the necessary duties of a seaman in order to fit him for his future position, that then it is a swindle, pure and simple, to have taken his money. Coming to the question of the higher education of merchant officers, I am certainly not one of those to decry the idea; but the fact remains that a good many shipowners are by no means in favour of such a course, fearing that they would have to pay a higher price for the improved article; and when they say that they would like to obtain men with superior qualifications, they do not really mean it. As regards the general teaching of navigation to apprentices on board ship, I quite hold with the lecturer that it would be an excellent thing, if it could be carried out. As one of Captain Toynbee's pupils, I can bear testimony to the capital work that gentleman did in that way when afloat; but at the same time we must remember that Captain Toynbee—happily he is still with us—is an exceptional man of great scientific attainments, gifted with the art of teaching others that which he knows himself—the latter being a very rare talent indeed. Although I could say much upon the subject of the lecture, as I am going to read a paper on "British Merchant Seamen: their Training and Treatment," in the City next week, I do not propose to take up more of your time this afternoon.

Commander W. C. CRUTCHLEY, R.N.R.:—I do not propose to trespass very long upon your time this afternoon, but there are one or two points with regard to Mr. Allingham's paper that I should like to mention. In the first place, I should like to bear testimony to the great trouble and pains he has taken to write the paper, and the very great excellence of what it contains; but I should be doing wrong, I think, if I said I endorse the opinions it expresses. I must take exception to the very first of his opening paragraphs, in almost the same words as Captain Caborne has used. My experience in the merchant service has ranged from a small barque of 200 tons to a ship of 5,000 tons, and bad as the merchant service is, I never came across the scenes or the men that are depicted in the opening sentences of the paper. I must distinctly say that a very great deal of responsibility for this depends on the officers having the control of the ships; or I will put it this way: that the condition of the merchant seaman to-day is, in a great measure, the fault of his officers, who have let the men go, who have taken no pains in their training, and have expected to reap the silk purse, whereas they have only sown the sow's ear. It was only this morning that I was in the City at the Marine Society's office, and I heard there that about 50 boys annually are sent to the Union Company at Southampton. These boys learn service and make good men. To what do I attribute that? Simply that the officers in the Union Company, as a rule, have given a great deal of attention to the training of their men, and Captain Wait appreciates the necessity of having British seamen. He has it in his power to take these boys, and he does take them, and does a lot of good. Consequently, if other officers in a similar position adopted the same course, probably we should have a decrease in the number of foreign and indifferent seamen that have been spoken of in this paper. I am sorry I cannot agree with Mr. Allingham as to the masters teaching apprentices at sea. I almost regret that he has not kept more separate

the question of the training of officers and the training of men. I regard it as impossible for the master of a ship nowadays to teach his apprentices navigation. If they have not a little theoretical grounding before they go to sea, they will never get it afterwards. On the other hand, I hold very strongly that the Board of Trade should make the examinations far stiffer than they are, and that before boys go to sea to train for officers they should have passed either a middle-class examination at Oxford, or the College of Preceptors, or some qualifying examination. I object altogether and entirely to the idea that because a boy has been brought up in the workhouse and turned out of the workhouse, he should be sent to sea with the idea of rising to be a commander of the finest ship in the merchant service. I think the idea is wrong, and one which, in this theatre at all events, we ought to fight against. Then, again, we come to the men. I have not the smallest hesitation in saying that the Naval Reserve has kept the merchant service from going to the dogs in the case of the officers. The best results have followed from officers of the merchant service being admitted to the Reserve. I say without hesitation, and I shall be backed up by most of the thinking men in the profession, that with regard to the men the only chance of salvation for men in the merchant service is some scheme by which every man who passes through merchant-ships shall be compelled to put in a certain time in the Navy. How it is to be done I do not know, and I do not pretend to say, but any scheme will do good that does that.

Commander W. DAWSON, R.N.:—I rise with some diffidence in the presence of so many merchant sailors who know so much more about that service than I do. We have had an admirable paper, prepared by one who has passed through the mill himself, and has had opportunities of taking a larger view of things than any man who has commanded simply a few ships. Those who have lived on shore, in connection with shipping, are generally able to get a view of various kinds of ships, and sometimes see and hear a good deal more than those actually engaged in commanding a particular merchantman. There are ships and ships, and by thinking only of one class of ships it is easy to pick holes in the paper of my friend. It is very difficult, in such a large and complex subject, to grasp each particular point. The lecturer speaks well of the liners. Yet there are about 30,000 Asiatics in liners. Why are those Asiatics carried? About a couple of years ago I was speaking to the leading shipowner at a large provincial port. He introduced the subject himself, and told me that Asiatics were very easily managed, if you only attended to four things:—1. You have to attend to their prejudices. 2. You have to attend to their religious wants. 3. You have to give a little consideration to their food. 4. You have to give a little consideration to justice. Take care as to those four points, he said, and Asiatics are most easy to manage. I turned round to my good friend and I said:—"Mr. Shipowner, don't you think that if those four points were attended to in the case of British seamen, you would find British seamen also very easy to manage?" If you attend to those four points, I venture to say, Mr. Chairman—and you have had half-a-century's experience in managing British seamen—that British seamen are the easiest of men to manage. Attend to their prejudices, attend to their religious wants, attend also to their food, and attend to justice—we all like justice—and I say a British seaman will be as good as any other nationality. As to our prejudices, I was very much struck a few days ago, when travelling on the Underground Railway, with the remarks made by a Fire Brigade man who had been twelve years in ships-of-war, but had left the Navy before his time for a pension, which he would have had if he had continued to serve eight years longer. He had nothing to say against the Navy. I asked him what sort of men were in the Navy now. He replied, "The men are all right, but the officers are all wrong." I rather pricked up my ears. "The officers all wrong, eh! What is wrong with the officers?" "Well," he replied, "you know in these days young officers have been getting into the Service by competitive examinations, and the

sons of greengrocers have come in. When they get stripes on their wrists they strut the quarter-deck as if the ship cannot contain them." I rather laughed, but it showed one of the prejudices which seamen have. They like to be commanded by gentlemen. Most men would prefer to be ordered about by a Royal Duke, and if we cannot have that, or a nobleman over us, and must obey a commoner, let him be at least a gentleman—a man who has some respect and consideration for the British seamen under him. The sort of shipowners and captains to be served has a great deal to do with the question of manning the mercantile marine. Where there are good officers and good employers there are good seamen; where there are inconsiderate officers and employers there will be indifferent seamen. Depend upon it, if good British seamen will not serve under some employers and captains, the fault lies in the system or in those who administer it. Passing to the last paragraph but one, in which the lecturer enters into the question of educating officer-apprentices; the training of seamen might have been more distinctly separated from the education of officers. They are different matters. There are far too many qualified officers at present in the mercantile marine. There is not employment for all. It would be much better to reduce the number by raising the educational and moral qualifications. Remember that the State gives to the captain of a merchant-ship an extent of power which is given to no other subject of the Crown. Immense, almost unlimited and undefined powers, powers that an admiral of the Navy knows nothing of, are given to the captain of the smallest merchant-ship. If the State delegates those undefined powers to a subject, it ought to take care that the person to whom they are delegated is one likely to use those irresponsible powers properly. One of the ways of doing that is for the State to look closely to the character and education of the officer. The present standard of examination, both into character and education, might be raised so as to sift the candidates more effectually. Of late years education has increased very much on shore. The board schools have been educating everybody up, and why should not the junior officer of the mercantile marine be as well educated as the board-school boy, and even pass an examination a little stiffer than a board-school boy could pass? Why should not the State raise the respective examinations of junior officers, of first officers, and captains, and also raise even the qualification for "extra" master to a higher standard? There is no reason why technical education facilities should not be provided by public moneys. About five or six years ago I employed my annual holidays in making enquiries into this subject. Unfortunately I could not pursue the question to its end, for my own duties—I am secretary to the Mission to Seamen—happily increase upon me very largely. But I found that public bodies—the county councils and others—were quite ready and willing to bear the expense of the technical education of apprentices and of officers of the mercantile marine, if only arrangements were organised for usefully employing technical education money. A few individual shipowners and intelligent shipmasters might put their heads together and devise a workable scheme by which apprentices could be educated afloat, and officers ashore. Periodical examinations, say once a year, as far as the voyages would allow, could be held on shore. The captain might be paid by results on the progressive examinations passed. There should also be some kind of prizes or certificates awarded to those candidates who passed successfully. Public bodies were quite willing that public moneys should be advanced to pay the master or the first officer, if the master could not do it himself, or someone else on board a ship which carried apprentices, to conduct the studies afloat. They were also willing that nautical schools for officers should be set up by public moneys. I enquired of the County Council and the Board School of London, and so on, as well as in the great seaports of the North, and at some of the smaller seaports. I had before my mind two distinct kinds of shore schools—one for what may be called "illiterates," for whom the School Board would probably have provided, and the other for the technical education of

officers, which the County Council and Technical Education Department would have been willing to provide. There was no question of limiting the money; so much so that I was a little startled myself, because they were prepared to go much further than I had contemplated. If I could have provided a building they were quite prepared to advance £2,000 in order to provide the necessary technical apparatus for the school, independently of allowances for the masters. This showed that there was no unwillingness to act if any pressure was put upon them by those who had a right to speak, and public moneys were met by funds from other sources. Of course, I had no such right to speak for anybody, as I was only acting personally; but anyone who had a right to speak for the merchant navy had only to come forward and show that some practical working system could be organised and set in motion by which the officers could have these great educational advantages when on shore, and the public money would be forthcoming. There is no reason why such technical education should not be carried on afloat as well as on shore. Officers going through a certain course might take suitable books to sea to study while serving on board ship, and resume their places in the class again to continue their studies at the end of their voyages. I have not the slightest doubt, from my own enquiries, that suitable arrangements could be worked out very easily if there were only some leading persons conversant throughout with the manifold workings of the mercantile marine to take it up. I do not at all see why the captain of a small coaster should have quite the same powers and position as the captain of a big ship who has one or two hundred men under his control. When ships carry a certain number of seamen or passengers a surgeon has to be taken: why not also a specially qualified captain? There should be, first, the second mate's examination, then the first mate's examination, then the master's examination, and following that the "extra" master's examination, which should carry with it the sole right to the title of commander, and sole capability to command a vessel requiring by law a surgeon. Nobody should be allowed to take the command of the lawful number of men unless he had qualified himself as "commander," and the powers delegated to him should exceed those of a "master." Public authorities should not give to a master mariner who is commanding half-a-dozen seamen quite the same powers as to the man commanding a hundred seamen. With regard to the "illiterates":—forty years ago, when I was serving in a ship as a young lieutenant, I took some pains, under the authority of my captain, to get up an adult school, and about a thousand seamen in that ship passed through that adult school. The attendance was entirely voluntary, but all except one man, who gave me great grief, attended that school. I did not teach in the school myself—the petty officer who undertook that part of the work had himself to be taught step by step. We began with the first four rules of arithmetic; we went on to the rule of proportion and fractions, thence to plane trigonometry, and finally a navigation class was established, entirely for the foremast hands. I never got more comfort or pleasure from anything attempted on board ship than I got from that school. Seamen came up to me twenty years afterwards to express thanks for what had been done for them. They said I was the first person "who had put it into their heads to better themselves." Personally, I did comparatively little in the matter. The arithmetic work was entered in work books, which were a kind of copy book. These were placed in my cabin every Saturday to be examined and initialled, showing that I took a personal interest in their progress. Once or twice a week I looked into the school, and showed a personal interest in the scholars. We had a quarterly examination on board of the men in the different classes, and gave prizes, and so on. I gave a number of lectures on astronomy, natural history, and nautical subjects, etc., illustrated by magic lantern, or wall diagrams, often prepared by seamen, who thus had a share in giving the lectures, while others kindly helped in this part of the education given on board that ship. It gave very little trouble, as the whole thing was an

amusement and pleasure to me, whilst it was a great benefit to seamen. If "illiterate" classes could be established on shore at home ports, it might keep merchant seamen out of some mischief by giving them pleasant employment for evening hours. Nothing gives such continuous employment as school. Religious exercises and concerts only employ a limited amount of time, whereas people never get tired of school work. The chiefs of the School Board of London saw their way to opening such a school if space could have been provided in a building frequented by seamen. I had not time, however, to work out a scheme, and so the project came to an end. This, at least, shows that there is a great deal in that last paragraph but one of the paper, and I would commend it to the attention of those interested in the welfare of the mercantile marine. The whole standard of life and comfort and education in the mercantile marine must be raised, and if we are faithful in doing the work given us to do in life it certainly will be raised.

Mr. FREDERICK WOOD:—The paper naturally divides itself into three heads: as regards officers, men, and apprentices. With regard to the officers, the intelligent foreigner coming here and having this paper put into his hands would certainly have very false impressions. He would have an idea that the officers of the merchant service are a peculiarly inefficient and incompetent class, with some few exceptions. The truth is that there are too many highly-educated, well-trained, and qualified men. It is pitiful to see the number of officers looking for employment. The number of ships has not increased materially since the beginning of Her Majesty's reign. The tonnage has increased enormously, but the ship, however large, has but one captain, therefore the chances of promotion are worse than they were sixty years ago. It makes me feel sad when I see those splendid floating colleges taking out a number of young gentlemen whose friends pay a heavy premium to enable them to command a ship, and think how few of them will ever reach the promised land; how many of them are destined to perish by the way in the wilderness. There is already an overflow of persons highly trained and highly educated. There is the "Conway" and the "Worcester" at work, and there are also Devitt and Moore's ships, and many other vessels training these young gentlemen whose friends pay premiums. There never was a scarcity of officers in this world at any time, even after the French Revolution had occurred. There was more promotion, but the vacancies were very soon filled up. The question of officers, I think, we may leave to itself; the supply very greatly exceeds the demand. As regards their education, the Board of Trade has raised the standard since 1st January—frightening many applicants away. With regard to the sailors—the engagement of foreigners—there opinions may differ. Naturally, our own patriotic feelings would lead us to suppose that British sailors are the best, but this fact remains—that there are not British sailors sufficient to man the British merchant service. The supply of British merchant seamen—and when I say seamen, I do not mean the people who push against one another at the cabin companion, but the men who fill the forecastle—the supply there is far from equal to the demand. Whether the shipowner likes it or not, he must employ foreigners if he would get his ships about. Why is that? If the owners will not take boys on the deck (they take plenty of boys for assistant cooks and stewards), where are the sailors to come from? They do not grow ready-made; they have to be trained. A sailor is a skilled workman. He has to learn his business as a boy. The supply now comes from the fisheries, because in the fisheries they do take boys. I believe there would be ample employment for a very large number of British sailors if we could get them. The British sailor, as I pointed out thirty years ago, is slowly becoming extinct, because boys are only taken with premiums, boys who want to be officers. There is a great and dangerous dearth of British seamen. I am not going to depreciate the foreigner—there are very good seamen amongst them; but in time of national peril we could not

depend on the foreigner or call upon him to assist. The power for the Queen to compel service still remains, but we could not call on these men to make them join the fleet in time of peril, and therefore it is absolutely against our national interest (and is a national danger) that the British seaman should become extinct. The remedy, in my humble judgment, is not to give premiums with apprentices, and not to try to establish any school or bribery of that sort. I will venture to advocate a very simple system, namely, that the Royal Navy should take about double the number of boys it takes now. They get proper training in habits of discipline and obedience, and they would learn those things better in their early days than later on, and in any time of national peril they would be able to go back to their old station on board a man-of-war. I think that would be a very great improvement, and the only possible way that I can see, because with regard to training-ships we have more of them now than we can use. What is the good of training-ships if the owners will not take the boys from them on deck? We have more boys on training-ships now than we can get away to sea. Half of them have to overflow into shore occupations, because, rightly or wrongly, the owners will not take boys for the deck.

A MEMBER: Why?

Mr. F. WOOD:—Because they cost more to carry than they are worth. Shipowners say that if they take them for apprentices they run away. That may be true, but if all ships took boys it would not much matter if some of them did run away. It would still keep up the supply of men. Coming to the technical question about the indenture, I will venture to tell the lecturer that he need take no further advice nor consult any more authorities. It is clear, plain and distinct beyond all dispute that an indenture only binds the owner to teach the boy to be an able seaman. If the parents of the boy want anything additional, they should put it in the indenture. A great deal of the misunderstanding is caused by the parents expecting a great deal more than is ever promised. The indentures should be executed at the Mercantile Marine Office, and not in the owner's office. Beware of indefinite agreements. A man of mature years cannot be trusted to go from here to Dantzic without the interference of the Government. It must be a proper agreement, executed in duplicate, and so on. But the boy, utterly ignorant of anything connected with seafaring matters, can be taken to an owner's office and bound for any number of years, until he is twenty-one. His parents (or his guardians, if he has no parents) may be quite as ignorant as the boy, and there is no impartial person present to say, "Well now, you understand it is so-and-so, and you must not expect more than is set down there; and if you want anything more than that, it should be added to your indenture in writing." There is no impartial authority to say what is promised by the owner or what is expected by the parent. That causes the confusion. The form of indenture is drawn up properly for the time when shipowners took illiterate boys simply to train them to be sailors. That is all that is foreseen in the indenture; anything more than that should be added in writing.

Mr. E. H. LITTLE, C.E.:—I think this paper is distinctly discursive, and lends itself to a great deal of criticism. I, like Mr. Allingham and my friend Captain Blackmore, have been writing on this question of education for the last fourteen or fifteen years. I am also a *corpus vile*, in that I have made the experiment of higher education on my own person, and I say it is not wanted. Shipowners do not require, and never are likely to require, educated officers or men. The seaman is becoming the unskilled labourer, and the whole trend of modern improvement is to require less and less skilled labour. That is the lesson taught us by this late engineering strike. We are lending all our energies now to the production of machinery, requiring less and less skilled labour. As some very distinguished admirals have pointed out in the columns of the *Times*, navigation is not a matter which requires very much knowledge. It is a matter of applied common sense, and there is no necessity for having highly-educated officers in

the merchant service. In the Royal Navy there is a difference. There the naval officers (especially the gunnery and torpedo men) have to be practical engineers. They do not like to be called engineers, but they are engineers, and nothing else. It may be news to some gentlemen in this room, when I say that in the United States Navy a proposition is now before the Senate for the union of the two branches of the naval service, officers and engineers. That has been a bone of contention with us for very many years; but Admiral Sir Astley-Cooper Key, I think it was, some twenty years ago, advocated this change. I have also advocated it. I think Captain Crutchley will remember taking me to task in connection with this matter. I think it is bound to come. The merchant seaman, as I said, nowadays is not a skilled labourer; he is a deck scrubber. It is only when he goes into the Royal Navy that he learns anything. Put him on board a naval ship, and what can he do? What can the merchant officer do? He can assist in the navigation duties, but very little more than that. It is only after a course of instruction in the Royal Naval College that he can be of service to his country. In regard to the contention with reference to the necessity for higher education in the merchant service, I may say that I entered the Royal Naval College, spent some time there, and passed the examinations very creditably indeed, but the education I obtained has not been the slightest use to me on board ship. I never found a shipowner or a master who wanted it. As a matter of fact, it has lost me three or four ships. I was in one Baltic trader, and I was supposed to be more or less an authority on stability. I pointed out to the master of this tramp steamer that in putting 200 tons on the bridge-deck he was endangering the ship. He remedied the matter, but the consequence was I was not wanted again. On another occasion I was in a tank steamer, and the master of that boat wanted to wash the decks down with crude petroleum. I pointed out to the master that he would probably blow up the ship, and I took measures to prevent him carrying out the absurd project, with the result that when I got back to port I was not wanted. Occasionally we see cases of ships being lost through the ignorance or incompetence of the masters. I can remember even mail-boats lost from this; but these cases are the exceptions which prove the rule, that we do not want educated officers. We have many hundreds of officers who have made voyages in all parts of the world, and it is just those very few exceptions to safe navigation that show that we can undertake all duties of navigation without very much skill. The Carthagenian sailors who sailed to our islands had not what we term "education," but they had common sense. A very distinguished engineer, I think Sir Benjamin Baker, who built the Forth Bridge (or was it Mr. Thornycroft?), has said that the highest engineering is simply applied common sense; and after all, applied common sense is what is required on board a ship. There is no doubt it is desirable, from a patriotic point of view, to have well-educated officers and seamen, but they are not wanted by the shipowner; and why should we ask him to pay for the education and training of these men? I do not think Mr. Allingham should gird thus at the shipowner, nor at the shipmasters for not spending the "dog-watch" (*sic*) in training apprentices Why should he? The State will not pay him for it. When the State wants these highly-trained officers and men, no doubt the State will find means of getting them. I cordially endorse the idea that we ought to send boys into the Navy, because I believe that is the best school we can have either for officers or men.

Lieutenant H. ACTON-BLAKE, R.N.R.:—I quite agree with Mr. Wood in what he says. It would be a good thing if the boys could be put through the Navy. The want of discipline in the merchant service is very great indeed; and although Commander Dawson seems to think the master of a ship has a large amount of power, he is not able to enforce it in the same way as discipline is enforced in the Navy. I, for one, should like to see a system of short service in the Royal Navy which could enable the Navy to assist the merchant service, as well as the merchant service to assist the Navy.

Captain F. L. CAMPBELL, R.N. :—The discussion generally seems to have tended towards the education and training of officers. It seems to me that very little has been said about the men, especially that large class employed in ocean tramps. These men get no training, and may be divided into foreign and British, nearly equal in number. The lecturer has suggested that to improve the mercantile marine they should have more training, continuous discharge certificates, and classification, which I understand means examination for rate of A.B. As regards the foreigners, I do not see how the continuous discharge certificate would answer. In a great number of cases they are shipped abroad, discharged abroad, and may have served in foreign ships in the intervals. As regards the British element, it is recognised that these certificates are made out in a very loose way by the captains of tramps, men being noted as A.B. without having served their four years, as laid down by the Board of Trade. The above remarks equally apply to the suggested classification of seamen. As regards the more complete training of boys for this class of steamer, the lecturer states that in 1896 there were 760 boys who were supposed to have gone to sea in trading steamers from the boys' training-ships, whilst the Registrar-General of Seamen reports in the same year that there are not half that number of boys and ordinary seamen under 16 years of age serving in this class of steamers. Under these circumstances it does not seem to me much good highly training a number of boys for the sea of whom only a very small proportion makes the sea a profession. The whole question seems to me to resolve itself into this: That until you give the men serving on these tramp steamers decent living and clean quarters, you cannot expect a respectable class of man to take up the profession of sailors—at any rate, in this class of ship. In all the steamers of this class which I have been over the accommodation was such that no man brought up in a man-of-war, or boy brought up in a training-ship, would dream of putting up with. One cruise would be quite enough; he would never wish for a second. A boy from a training-ship and a man-of-war's man have been trained to keep themselves and their things clean; they are accustomed to decent food and to have a decent place to live in, and a sailor's life on board a tramp would not suit them. It has been suggested all seamen should serve in a man-of-war before serving in the mercantile marine. Men-of-war's men would not serve in these tramps; they do serve in the big liners, where one is continually coming across Reservemen and pensioners. The class of British one finds on board tramps are mostly men who began their sailor life by being picked up from the wharves or jetties by some ship in the home trade short of a man. They are without training, and are not seamen when they join; they get their certificate at the end of the cruise, and are then started in a new profession. These cargo steamers, I am sure, must have a bad effect on the supply of seamen for the mercantile marine. They are continually being met with in the ports around our coast; and any lad who had an idea of taking up the sea as a profession, after seeing the accommodation supplied to the seamen on those ships, would probably give up all idea of it, and return to his plough, where he would be a good deal better off.

Captain E. BLACKMORE (Mercantile Marine):—I should like to say one word before the discussion closes. I think the crux of this question of education in the merchant service lies with the shipowner, and until we can bring pressure to bear on the shipowner and make him aware of his own interest and of his duty in regard to the question, we shall never proceed a whit further than we have got at the present moment, after years of labour and fighting and talking. Mr. Allingham's paper has referred to technical education on shore, and he considers that employers on shore are always willing and earnest and regardful of their apprentices, and endeavour to get them educated. I know that for a fact; I have been a longshoreman as well as a sailor, and I know, after 25 years' experience in an engineering factory in Scotland, that we all of us put our shoulders to the wheel and took care to see that our apprentices were fairly well educated. We took advantage of all that South Kensington

could offer to us, and in every respect we got plenty of pupils for engineering and the other branches. But in getting up a class for navigation in the town, such as I tried to interest myself in, we utterly failed. We could not get a scholar. Until the shipowner sees his way to do like other employers, and lay out a little money or give a little care to the education of his officers as well as his men, we may talk until we are black in the face, and we shall never proceed a step farther. We may do something with regard to educating men for the Navy: there is no doubt about that; but I quite agree with the gentleman who has spoken last, and I should like very much, if it were possible, to see every British sailor educated for the Navy, but I am satisfied from my own experience that if the men are once educated and accustomed to two, three, or four years on board Her Majesty's ships, they will never take to a British trading-ship, except one of the mail liners. That I am satisfied of. They could not do it. The condition under which they exist in sailing-ships and tramp steamers of the present day, as a speaker has just said, is such that they would not put up with it for a day. Therefore, until we can impress upon the shipowner the necessity of a better class of men all round, whether officers or men, we shall not do any good whatever. I think it is to the disgrace of shipowners—I stand here to say it—that they are the only class of employers in Great Britain who do not spend one farthing in the education of their men.

Mr. GEORGE QUICK (Fleet Engineer R.N.):—May I venture to say one word before the closing of the meeting? I am, unfortunately, not a shipowner, and therefore I cannot say much in defence of them; but I have heard a great deal about the duties of the shipowners to the men, and perhaps it is very necessary that something should be said on the other side. What I do object to is, that there is too much coddling for everybody in this country. The poor, dear working-man is to have everything, and he is brought up with the idea that he owes no duties to the State, but that the State is under great obligations to him. I am sorry to say that so far from our being able to get good men for the mercantile marine, we shall not do it whilst those principles prevail in all schools and other public institutions. There is too much of luxury preached for everybody. The proposal made by one of the speakers for getting farmers' sons to join training-ships in order that they may qualify for the sea will never be carried out, because you cannot even get them to work for good wages on shore. All the craze is for a kind of mental education; possessed of that, they will do no manual work whatever. They expect to be paid by the State, or some unknown power, for their educational acquirements only, and for doing absolutely nothing. The whole object of the Englishman's life appears nowadays to avoid manual work, and I think the sooner we have conscription in this country the better it will be, so that all men may be taught some duty to the State as well as to themselves.[1]

[1] The late hour prevented my mentioning the difficulty which farmers and other employers of labour find in getting men or boys to do any work in the country, although we hear so much of want of employment in the towns. What we want, to turn our boys into good men, is more of the drill sergeant in all our schools, and less of the cramming schoolmaster. The boys who have acquired the habit of physical obedience to the word of command of the drill instructor will make better mechanics, better labourers, and better sailors and soldiers, and better citizens in all ranks of life than those whose physical training has been neglected for the sake of that mere mental knowledge, which is such a useless drug in the market. Briefly, the education of the body should be carried on equally with the education of the mind in all our State and Voluntary schools, so that the whole race may be well disciplined; and then we shall have the raw material thoroughly well prepared for manning the mercantile marine, the Royal Navy, and for maintaining the manufacturing, the commercial, and the military supremacy of our Empire. Without that physical training in all our schools we must take a back seat, far behind those noble nations which make military service obligatory on all their able-bodied citizens.—G. Q.

The CHAIRMAN (Vice-Admiral Sir N. Bowden-Smith):—If no one else has anything to say, I will make a few concluding remarks before we bring the meeting to a close, and I will make them as short as possible in consequence of the lateness of the hour. I will say nothing with regard to the question of the supply of officers after what has fallen from Mr. Frederick Wood, because I believe what he says is correct, namely, that there are a great many more officers waiting for berths than there are berths to receive them. I will go, therefore, only into the question of the men. I remember some years ago taking up a cookery book, and looking through it I came across the receipt for making hare soup. The first thing I read was "First catch your hare." You have first to catch your seaman, and you must get him as a boy or man, for no one is born a seaman. I am one of those who think that if you can get him young to sea it is all the better, for it is an unnatural life, and sailors are more likely to remain at sea if they begin as boys than if they are taken as men. The statements made this afternoon about training-ships very greatly astonished me. I do not know much about the interior economy of a merchant-ship, but I do know a great deal about training-ships, and I have been myself on the committee of the Marine Society's training-ship, the "Warspite," for 20 or 25 years. It was stated by the lecturer, speaking of the "Indefatigable," at Liverpool, that they could not get their boys out after passing through the ship, and another gentleman stated that the ships would not enter boys. Perhaps it will surprise you, therefore, to hear that we have no difficulty whatever in getting out our boys from the "Warspite." We get as many boys to sea from the "Warspite" as we can train. It may be we take great care in their selection. In the first place they are obliged to be of good character, and we take no boy who has been convicted of any serious offence. They also have to pass a very strict surgical examination, the question of good eye-sight being specially considered. We have also shipping agents both at Cardiff and in the river, which may account for our success. Captain Henderson Smith said that he thought the Government ought to place more training-ships about the coast. With regard to the training-ships in the River Thames, we have more ships than we can find candidates for. I will begin first with the "Warspite," which can berth comfortably 250 boys or even 300 if necessary. The "Arethusa," worked on very much the same lines by the National Refuges Society, and started by Mr. Williams some years ago, can also hold 250 or more. Those two ships have during recent years only averaged, as regards the "Arethusa," 170 boys, and as regards the "Warspite," 180 or 190. Of course, it is partly a question of money, but both these ships are now touting for boys. If we enter waifs and strays and pay no attention to the size and character of the boys we could doubtless enter plenty, but in that case we could not place them after they had passed through the training-ship. As I have also previously stated, the medical examination is a strict one, and from eight to ten per cent. of the boys are rejected in consequence of defective eyesight or colour-blindness. It would therefore be unwise to establish more training-ships—at all events in the Thames—if we cannot find sufficient suitable candidates to fill those we have at present. There is, in addition to the two ships mentioned, the "Exmouth" at Grays, supported by the London Unions from the rates, which can hold 600 boys, and which is usually pretty full. There is a fourth ship, the "Cornwall," at Purfleet, but she is a reformatory ship, and boys are sent to her as they are sent to a reformatory school. She holds about 250 boys, and I am sorry to say she is usually full. I think the lecturer is a little hard on his country and on our Government when he says that while Englishmen sit still with folded hands, the Government of the United States have lent suitable ships and supplied officers, etc., for training purposes. I do not think he can be aware that the Admiralty do lend ships to societies for training seamen. The "Warspite" is lent to the Marine Society by the Admiralty, and if the present ship

(now being surveyed) proves to be too rotten for repair, their lordships have promised to lend us another. I do not know what assistance the Board of Trade gives the various training-ships, but as far as the Admiralty is concerned, they not only lend ships but give money grants for certain boys who enter the Navy. As regards the practical training of these boys, of course we do not pretend to be able to make them seamen, but we do accustom them to cleanliness and discipline. You can teach them also the compass, to pull an oar, to use a palm and needle, to mend their clothes, and to handle the sails aloft as far as that can be taught in a harbour ship. There is something in the British youth which seems to lend itself to this training-ship system, and it is wonderful how the boys improve in appearance and physique after they have been two or three months on board. There is only one more question I will touch upon. The lecturer said we ought to have shore schools at San Francisco and other places in which to train our young officers whilst their ships are lying idle in those ports. I do not see myself how that is practicable, nor who is to supply the necessary funds. I am sure you will all agree with me, in conclusion, that the matter of training our merchant seamen is one of great importance, and that I am only expressing the opinion of all present when I say that our thanks are due to the lecturer for this paper on that subject.

# THE DEFENSIVE STRENGTH OF RUSSIA.

*Compiled by Major C. E. de la Poer Beresford, Wilts Regt.*

*Commander-in-Chief.*—H.I.M. Nicholas-Alexandrovitch, Emperor of all the Russias, Grand Duke of Finland, etc., etc.

*Officers on special service at St. Petersburg.*

*Minister of War.*—General P. S. Vannovsky, A.D.C.
*Chief of the General Staff.*—General Sakharof.
*Adlatus.*—Lieut.-General de Bilderling.

*Chiefs of Sections (General Staff).*

*1st Section.*—Major-General W. J. Afassaniev.
*2nd* ,, Colonel Polivanov.
*3rd* ,, Colonel Garf.
*4th* ,, (Vacant.)
*5th* ,, Colonel Fedorov.
*6th* ,, Major-General A. P. Ivanov.
*7th* ,, Councillor of State, Prokoviev.
*8th* ,, Colonel N. E. Svietlov.
*Asiatic Section.*—Lieut.-General Protsensko.
*Railway* ,, Lieut.-General Golovine.
*Mobilisation.*—Lieut.-General Hubbenet.
*Archives.*—Lieut.-General Oreus.
*Inspector-General of Artillery.*—H.I.H. Grand Duke Michael (F.-M.)
*Inspector-General of Cavalry.*—H.I.H. Grand Duke Nicholas-Nicolaievitch (Lieut.-General).

*Governors-General of the most important Governments.*

*Warsaw.*—General (of Infantry) Prince Imeretinsky.
*Moscow.*—H.I.H. Grand Duke Sergius-Alexandrovitch (Lieut.-General).
*Kiev.*—General A. P. Count Ignatiev.
*Caucasus.*—General Prince G. Galitzine.

*Military District Commanders (the most important).*

*St. Petersburg.*—H.I.H. Grand Duke Vladimir-Alexandrovitch (General).

*Warsaw.*—General Prince Imeretinsky.

*Moscow.*—H.I.H. Grand Duke Sergius-Alexandrovitch.

*Wilna.*—General (of Infantry) Trotsky.

*Ataman of all the Cossacks.*—H.M. The Emperor.

*Cossack Atamans (or Hetmänner).*—Don Cossacks: Prince Sviatopolsk Mirski II.; Térek Cossacks: Lieut.-General Kachanov; Astrakhan Cossacks: General von Hasenkampf; Oural Cossacks: Major-General Maximovitch; Kuban Cossacks: Lieut.-General Malama.

*Army Corps Commanders.*

| | | |
|---|---|---|
| Guard Corps | St. Petersburg | General Prince Obolensky. |
| Grenadier Corps | Moscow | General (of Infantry) Malakhov. |
| 1st Army Corps | St. Petersburg | Lieut.-General Baron Meyendorf. |
| 2nd „ | Wilna | Lieut.-General Maximovitch. |
| 3rd „ | Riga | Lieut.-General Dmitrovsky. |
| 4th „ | Minsk | Lieut.-General Perlik. |
| 5th „ | Warsaw | Lieut.-General Bodisco. |
| 6th „ | Warsaw | General (of Cavalry) Koulgatchev. |
| 7th „ | [1] Simféropol | Lieut.-General Doukmassov. |
| 8th „ | Odessa | Lieut.-General de Skalon. |
| 9th „ | Kiev | Lieut.-General Liubovilsky. |
| 10th „ | Kharkov | General (of Cavalry) Winberg. |
| 11th „ | Jitomir | Lieut.-General Dochtourov. |
| 12th „ | [2] Vinnitza | Lieut.-General Novitsky. |
| 13th „ | [3] Smolensk | Lieut.-General Rehbinder. |
| 14th „ | Lublin | Lieut.-General Stoliétov. |
| 15th „ | Warsaw | Lieut.-General Borosdine, |
| 16th „ | Vitebsk | Lieut.-General Batyanov. |
| 17th „ | [4] Toula | Lieut.-General Léonov. |
| 18th „ | [5] Dorpat (Iouriev) | Lieut.-General Adamovitch. |
| 19th „ | [6] Brest Litovski | Lieut.-General Gourtchine. |
| Caucasus Army Corps | Tiflis | Lieut.-General Sesemann. |
| Finland | Helsingfors | (Vacant.) |
| | Chief of Staff | Lieut.-General Baron Kaulbars. |

[1] Formerly at Sevastopol.
[2] Formerly at Uman.
[3] Formerly at Moscow.
[4] Formerly at Nishni-Novgorod.
[5] A newly-formed army corps.
[6] A newly-formed army corps.

*Inspectors-General of Fortresses (lately redistributed).*

| | |
|---|---|
| I.—Group of the fortresses:— Achalzich, Alexandropol, Ardahan, Batûm, Bender | (Vacant.) |
| II.—Bobruisk | Lieut.-General Boursy. |
| III.—Brest, Litovski | Lieut.-General Bernhardt. |
| IV.—Dvinsk, Dünaburgh | Lieut.-General Borbenkov. |
| V.—Dvinsk (mouthof) Dünamünde | Lieut.-General Domoradsky. |
| VI.—Ivangorod | Lieut.-General Tchaïkovsky. |
| VII.—Kars | Lieut.-General Faddeiev. |
| VIII.—Kertch | Lieut.-General Ackerman. |
| IX.—Kiev (Petchersk) | Lieut.-General Anossov. |
| X.—Kovno | Gen. (of Engineers) Tchemersine. |
| XI.—Kronstadt | Vice-Admiral Brylkine. |
| XII.—Libau | Major-General Lazarev. |
| XIII.—Michailov | Major-General Podtiäguine. |
| XIV.—Novogiorgevsk | Major-General Burmann. |
| XV.—Odessa, Ossovietz | Lieut.-General Lazarev. |
| XVI.—Otchakov | Lieut.-General Chtétinine. |
| XVII.—St. Petersburg (Ft. Peter and Paul) | General (of Infantry) Ellis. |
| XVIII.—Segrj, Sevastopol | Major-General Akerman. |
| XIX.—Svéaborg (Helsingfors) | Lieut.-General Argamakov. |
| XX.—Warsaw | Lieut.-General Komarov. |
| XXI.—Vladivostock (W. Siberia) | Major-General Strijev. |
| XXII.—Viborg (Finland) | Lieut.-General Roubetz. |

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## DISTRIBUTION OF TROOPS.

*Ist Military District, St. Petersburg.*

*Commander.*—H.I.H. Grand Duke Vladimir-Alexandrovitch, etc., etc.
*Adlatus.*—General Rehbinder.
*Chief Staff Officer.*—Lieut.-General Bobrikov.
*Officer Commanding Artillery.*—Lieut.-General Onoprienko.
*Officer Commanding Engineers.*—Major-General Krassovsky.

*Guard Corps.*

1st Cavalry Division.—25 squadrons, of which 9 in Warsaw.
2nd „ „ 7 regiments in 3 brigades, 42 squadrons.
Total in St. Petersburg District, 58 squadrons.

*Guard Rifle Brigade.*

1st and 2nd Guard Infantry Divisions.
1st and 2nd Guard Artillery Brigades.
All the above, with the exception of 9 squadrons in Warsaw, in St. Petersburg.

1st Army Corps (without the Cavalry Division), consisting of:—
37th Infantry Division. Guard Horse Artillery Brigade.
22nd Infantry Division, at Nishni-Novgorod.
1st Sapper (Engineer) Brigade and 11 infantry reserve battalions.
22nd, 37th Artillery, and 1st Artillery Reserve Brigade.

XVIIIth Army Corps, Headquarters Dorpat, consisting of:—
23rd Division (Revel). 23rd Artillery Brigade (Revel).
24th „ (Pskov). 24th „ „ (Pskov).

*Finland.*

*Commander.*—A general officer (temporarily vacant).
*Adlatus.*—Lieut.-General Gontscharov.
*Chief Staff Officer.*—Lieut.-General Baron Kaulbars.
*Officer Commanding Artillery.*—Lieut.-General Smaguine.
*Officer Commanding Engineers.*—Major-General Soukine.

This command includes the whole Finnish Army, with a *peace* effective of 236 officers, 6,020 men, 985 horses, besides the following Russian troops:—

4 battalions (16 companies Fortress Artillery).
2 battalions Fortress Infantry. 1 detachment (300 men) Fortress Miners.
8 Rifle battalions.

*IInd Military District, Vilna.*

*Commander.*—Lieut.-General Trotsky.
*Adlatus.*—General Yannovsky.
*Chief Staff Officer.*—Lieut.-General Povolotsky.
*Officer Commanding Artillery.*—Lieut.-General Martouschov.
*Officer Commanding Engineers.*—Major-General Berthold.

IInd Army Corps, Vilna, consisting of:—
2nd Cavalry Division (Suvalki).
26th Infantry Division, and 26th Artillery Brigade (Grodno).
27th „ „ „ 27th „ „ (Vilna).

IIIrd Army Corps (Riga) consisting of:—
23rd Division of Cavalry (Kovno).
28th Infantry Division (Kovno). 28th Artillery Brigade (Vitebsk).
29th Infantry Division, and 29th Artillery Brigade (Riga).

IVth Army Corps (Minsk), consisting of:—
30th Infantry Division (Minsk), 30th Artillery Brigade (Minsk).
40th Infantry Division (Bobruisk), 40th Artillery Brigade (Bobruisk).

XVIth Army Corps (Vitebsk), consisting of:—
1 cavalry brigade (detached at Borissov).
25th Infantry Division (Dünaburg), 25th Artillery Brigade (Dünaburg).
41st Infantry Division (Vitebsk), 41st Artillery Brigade (Gomely).

*IIIrd Military District (Warsaw).*

*Commander.*—General Prince Imeretinsky.

*Adlatus.*—Lieut.-General Rasguildéiev.

*Chief Staff Officer.*—Lieut.-General Pousyvrevsky.

*Officer Commanding Artillery.*—Major-General Gerşo-Vinogradsky.

*Officer Commanding Engineers.*—Lieut.-General Climenko.

*Inspector-General of Cavalry.*—(Temporarily vacant.)

3rd Guard, Cavalry Brigade (Warsaw).

3rd Guard, Infantry Division (Warsaw).

3rd Guard, Artillery Brigade (Warsaw).

Vth Army Corps (Warsaw), consisting of :—

5th Cavalry Division (Vloclavek).

7th Infantry Division (Radom), 7th Artillery Brigade (Radom).

10th Infantry Division (Warsaw), 10th Artillery Brigade (Lodicz).

VIth Army Corps (Warsaw), consisting of :—

4th Cavalry Division (Biëlostok), 6th Artillery Division (Warsaw).

4th Infantry Division (Lomcha), 4th Artillery Brigade (Ostrog).

16th Infantry Division (Biëlostok), 16th Artillery Brigade (Biëlostok).

XIVth Army Corps (Lublin), consisting of :—

1st Division Don Cossacks (Zamosc).

17th Infantry Division (Lublin), 17th Artillery Brigade (Lublin).

18th Infantry Division (Lublin), 18th Artillery Brigade (Lublin and Vlodova).

XVth Army Corps (Warsaw) consisting of :—

6th Cavalry Division (Warsaw).

6th Infantry Division (Ostroleka). 6th Artillery Brigade (Ostroleka).

8th Infantry Division (Pultusk). 8th Artillery Brigade (Pultusk).

XIXth Army Corps (Brest Litovski) :—

7th Cavalry Division (Kovel).

2nd Infantry Division (Brest Litovski). 3rd Artillery Brigade (Brest Litovski).

38th Infantry Division (Kobrin). 38th Artillery Brigade (Kobrin).

In the Warsaw Military District are also comprised :—

1st (Warsaw) Cavalry Corps composed of the 13th and 14th, and 15th (Plock) Cavalry Divisions, and Horse Artillery Batteries Nos. 20, 21, and 23.

The 2nd Infantry Troop Division (Brest Litovski), and the 8th ditto (Warsaw).

The 2nd Artillery Brigade (Biéla), and the 8th ditto (Lovitsh).

*IVth Military District, Kiev.*

*Commander.*—General Dragomirov, A.D.C., etc.

*Adlatus.*—General (of Infantry) Kossitch.

*Chief Staff Officer.*—Major-General Szymanovsky.

*Officer Commanding Artillery.*—Lieut.-General Tiäjolov.

*Officer Commanding Engineers.*—Lieut.-General Kouchnerev.

IXth Army Corps (Kiev), consisting of:—
- 9th Cavalry Division (Kiev).
- 5th Infantry ,, (Jitomir). 5th Artillery Brigade (Niëschin).
- 33rd ,, ,, (Kiev). 33rd Artillery Brigade (Kiev).
- 3rd Engineer Brigade (Kiev).

Xth Army Corps (Kharkov), consisting of:—
- 10th Cavalry Division (Kharkov).
- 9th Infantry Division (Poltava), 9th Artillery Brigade (Poltava).
- 31st Infantry Division (Kharkov), 31st Artillery Brigade (Bielgorod).

XIth Army Corps (Jitomir), consisting of:—
- 11th Cavalry Division (Doubno).
- 11th Infantry Division (Loutzk), 11th Artillery Brigade (Rovno).
- 32nd Infantry Division (Rovno), 32nd Artillery Brigade (Berdilschev).

XIIth Army Corps (Vinnitza), consisting of:—
- 12th Cavalry Division (Proskourov).
- 12th Infantry Division (Proskourov), 12th Artillery Brigade (Vinnitza).
- 19th Infantry Division (Toultchin), 19th Artillery Brigade (Smiela or Toultchin).

*Vth Military District, Odessa.*

*Commander.*—General Count Moussine-Pouchkine, A.D.C.

*Adlatus.*—(Vacant.)

*Chief Staff Officer.*—Major-General Zakharov.

*Officer Commanding Artillery.*—Lieut.-General Kokorine.

*Officer Commanding Engineers.*—Lieut.-General Depp.

VIIth Army Corps, consisting of:—
- 13th Infantry Division (Sevastopol). 13th Artillery Brigade (Sevastopol.)
- 34th Infantry Division (Ékaterinoslav). 34th Artillery Brigade (Kherson).

VIIIth Army Corps, consisting of:—
- 8th Cavalry Division (Kichinev).
- 14th Infantry Division (Kichinev). 14th Artillery Brigade (Kichinev).
- 15th Infantry Division (Odessa). 15th Artillery Brigade (Odessa or Vosnosensk).
- 4th Rifle Brigade (Taganrog).

*VIth Military District, Moscow.*

*Commander.*—Grand Duke Sergius-Alexandrovitch (Lieut.-General, A.D.C.).

*Adlatus.*—General (of Infantry) Danilov.

*Chief Staff Officer.*—Lieut.-General Sobolev.

*Officer Commanding Artillery.*—Lieut.-General Sikstel.

*Officer Commanding Engineers.*—Lieut.-General Vorontzov-Veliaminov.

Grenadier Corps at Moscow consists of:—

1st Grenadier Division (Moscow).
2nd Grenadier Division (Kaluga), now in Moscow.
3rd Grenadier Division (Tambov), now in Moscow.
1st Artillery Brigade (Moscow).
2nd „ „ (Kaluga).
3rd „ „ (Riyazan).
1st Cavalry Division (Moscow).

XIIIth Army Corps, consisting of:—

1st Infantry Division (Smolensk). 1st Artillery Brigade (Moscow).
36th Infantry Division (Orel). 36th Artillery Brigade „

XVIIth Army Corps, consisting of:—

3rd Infantry Division (Kaluga). 3rd Artillery Brigade (Pavlosk).
35th Infantry Division (Riyazan). 35th Artillery Brigade (Rostov).

*Province of the Don.*

*Ataman, or Commander.*—Prince Sviatopolsk Mirski II.

The 12th Don Cossack Cavalry Regiment, at and about Novo-Cercask.

*VIIth Military District, Kazan.*

*Commander.*—General (of Infantry) Mechtchérinov.

*Chief Staff Officer.*—Lieut.-General Barmin.

*Officer Commanding Artillery.*—Major-General Bohnsdorf.

*Officer Commanding Engineers.*—Major-General Chirokov.

This district comprises Astrakhan, Kazan, Vyaika, Perm, Pensa, Simbirsk, Samara, Saratov, with the—

50th, 58th, 59th, 60th, and 61st Infantry Reserve Brigades.
The Astrakhan Cossack Cavalry Regiment.
16 sotnias Orenburg Cossacks, 2 Cossack H.A. Batteries.

N.B.—This district which formerly comprised 50 battalions, and in which was the old 15th Army Corps, has been much reduced to help to form the new army corps stationed on the Western frontiers.

*VIIIth Military District, Caucasus.*

*Commander.*—General Prince G. Galitzine, etc.

*Adlatus.*—Lieut.-General Frese.

*Chief Staff Officer.*—Major-General Shuttleworth.

*Officer Commanding Artillery.*—Lieut.-General Baumgarten.

*Officer Commanding Engineers.*—Major-General Routkovsky.

The Caucasus Army Corps, consisting of:—

1st Infantry Division, Grenadiers of the Caucasus.
20th Infantry Division (Koutaïs). 20th Artillery Brigade (Vladikavkas.)
39th Infantry Division (Alexandropol). 39th Artillery Brigade (Kars.)
1st Division Caucasus Cossacks (Tiflis).
2nd ,, ,, (Élisavetpol).
1st Caucasus Cavalry Division (Tiflis).
21st Infantry Division (Vladikavkas). 21st Artillery Brigade (Temir-han-Schura).
Caucasus Grenadier Artillery Brigade (Tiflis).

*IXth Military District, Transcaspian Territory, comprising Oussoun-Ada, Askabad, Merv, Chardjui, Kerki, Sarakhs.*

*Commander.*—Lieut.-General Kouropatkine.
*Chief Staff Officer.*—Major-General Ssakharov.
*Officer Commanding Artillery.*—Major-General Ismaïlovitch.
*Officer Commanding Engineers.*—Major-General Prince Toumanov.

This force now consists of:—

2 brigades rifles, each of 8 battalions, with 2 reserve battalions.
1 brigade Terek Cossacks, 6 squadrons.
2 squadrons of Turkomans.
3 batteries Cossack Artillery.
1 battery Cossack Horse Artillery.
2 railway battalions, and 1 sapper company.
1 detachment Fortress Artillery.
1 detachment technical troops.
1 section Frontier (Customs) Police.
Total, 20 battalions, 8 squadrons, 3 batteries.

*Xth Military District, Turkestan (territories of Fergana, Syr-Daria, and Samarkand).*

*Commander.*—Governor-General Baron A. Vrevsky.
*Chief Staff Officer.*—Major-General Beliarsky.
*Officer Commanding Artillery.*—Lieut.-General Ssawrimovitch.
*Officer Commanding Engineers.*—Major-General Yanouchkovsky.

This district comprises:—

4 brigades Turkestan infantry, each of 5 battalions.
1 brigade Turkestan rifles, 4 battalions.
Total, 24 battalions infantry.
4 regiments of Cavalry, of 6 squadrons. Total, 24 squadrons.
1 brigade Artillery, 7 batteries; 1 Mountain Horse Artillery, and 1 Cossack battery. Total, 9 batteries Field Artillery.
1 battery Fortress Artillery.
½ company Sappers.
1 section Frontier (Customs) Police.

*XIth Amour District. Governor-General, Lieut.-General Doukhovskoi.*
*Commander.*—The Governor-General.
*Adlatus.*—Lieut.-General Grodekov.
*Chief Staff Officer.*—Major-General Tschitchagov.
*Officer Commanding Artillery.*—Major-General Topornine.
*Officer Commanding Engineers.*—Major-General Hemmelman.
This district comprises :—

10 battalions Infantry of the Line. Nos. 3, 4, 6 and 10 constitute the 1st West Siberian Brigade; Nos. 5, 8 and 9 constitute the 2nd East Siberian Brigade.
2 brigades West Siberian Rifles, each of 5 battalions.
5 battalions Reserve Infantry (Striätensk).
6 battalions of Trans-Baïkal Infantry.
1 battalion West Siberian Sappers.
1 railway battalion, 1 reserve battalion.
Total, 33 battalions.
1 cavalry brigade, of 2½ regiments, 15 squadrons.
3 sotnias Cossacks (2 Primorsk, 1 Oussourie).
2½ artillery brigades, comprising 12 or 14 batteries.
1 company (Fortress Torpedo) Miners.

*XIIth Omsk District (Steppe Government, with Tomsk and Tobolsk).*
*Commander.*—General Baron M. de Taubé.
*Chief Staff Officer.*—Lieut.-General Schepelev.
*Officer Commanding Artillery.*—(Vacant.)
*Officer Commanding Engineers.*—Major-General Voïtsekovitch.
This district comprises :—

5 battalions West Siberian Infantry, 4 reserve battalions.
1 cavalry brigade of 4 regiments, 22 squadrons.
½ Artillery Brigade, comprising 1 horse artillery and 2 mountain batteries.
1 company West Siberian Sappers.
Total, 9 battalions, 22 squadrons, 3 batteries, 1 company (Sappers).

*XIIIth Irkoutsk District (Irkoutsk, Yenesseisk, Yakoutsk).*
*Commander.*—General A. D. Gorémykine.
In this district are 2 reserve battalions and 2 squadrons.
N.B.—The Fortress Garrison at Vladivostock not included.

SUMMARY.

The Russian Empire is divided into 13 military districts (Finland not comprised), each constituting an independent army (see above); and the regions of Transcaspia and that of the Don Cossacks. The 6 European districts and the Caucasus are occupied by 22 army corps, each of which has, as a rule, 2 infantry divisions, 2 brigades F. A., 1 cavalry corps of 2 divisions, and 2 H. A. batteries. The Guard Corps has 3 infantry divisions, 2 cavalry divisions, and 4 F. A. brigades. The "Grenadier" Corps has 3 infantry divisions, 3 F. A. brigades, and 1 cavalry division. The Ist, IVth, VIIth, XIIIth, and XVIIIth Army Corps

have no cavalry division. The XIIth and XVIIth have only a brigade of cavalry. The Caucasus Army Corps has 3 infantry divisions, 3 F. A. brigades, 2 Cossack cavalry divisions.

Thus in Europe and the Caucasus there are stationed:—

48 infantry divisions,
22 cavalry divisions + 2 cavalry brigades,
48 F. A. brigades,
44 H. A. batteries.

Besides—

74 battalions of rifles,
9 regiments and 5 batteries of artillery,
7 brigades of engineers,
5 battalions military train,

which are not included in the corps organisation.

The total peace effective of the Army in Europe and Asia is 3,600 officers and 860,000 men. This does not include customs frontier police or gens d'armes. The Militia, or Territorial Army (Opoltchénié), for which in peace-time only weak cadres exist, is estimated at two million men, who would form in war 450 battalions and 72 squadrons.

Recruiting is carried on in 22 brigade districts, which comprise 558 administrative chiefs of sectional troops. Conscripts from Poland, Esthonia, Livonia, Courland, and Bessarabia are sent, for the most part, into Russian regiments. The artillery is recruited in offices dependent on the chiefs of sectional troops. The Infantry of the Guard, Grenadiers, rifles, cavalry, and reserve artillery are recruited all over the Empire.

By the laws 13-1-1874, 30-10-1876, 26-6-1888, etc., military service is obligatory for all Russians aged 21. It comprises 5 years in the first line of the Active Army, 13 years in the Reserve, and 5 years in the first line of the Militia (Opoltchénié). The conditions of service for Turkestan, the Amour, Kouban, and Terek territories differ slightly with a view to shorter service in the Active Army and longer Reserve service. Among the Cossacks (Kazáki) military service commences at 19 years of age; comprising 3 years' preparatory instruction in their birthplace or nearest village; 4 years, first line, active Army; 4 years, second line (these men are called up for 3 weeks' drill per annum); 4 years in third line (with one drill of 3 weeks in the 3 years); and 5 years in the depôt Reserve class, only called out in war-time. In addition, every Cossack capable of bearing arms, may be called out, in case of national emergency, by the Emperor. Are exempt from all service: Clergy (Christian only), doctors, chemists, veterinary surgeons, teachers, and artists studying abroad.

The annual contingent of recruits is 264,300 men (1897, 282,900); including 14,000 men for the Navy, and 4,500 natives of Terek, Kouban, and Transcaucasia. According to the law of 1890, about 100,000 men of the first line of the Opoltchénié (Militia) must be called out for drill every year.

The 48 battalions of Fortress Artillery have not been mentioned elsewhere in this memoir.

# NAVAL NOTES.

HOME.—The following are the principal appointments which have been made: Rear-Admiral—Sir R. H. Harris, K.C.M.G., to Command of the Cape station, vice Rear-Admiral Sir H. H. Rawson, K.C.B. Captains—R. S. Rolleston to "Phœbe"; G. M. Henderson to "Thetis"; G. H. Cherry to "Sirius"; R. J. Montgomerie, C.B., to "Bonaventure." Commander—G. L. Bennett to "Scout."

The first-class battle-ship "Victorious" has passed safely through the Suez Canal after having been eighty-eight hours aground off Port Said, and by the latest advices had left Aden *en route* to strengthen the squadron in China. Leaving Malta on the afternoon of the 11th ult., she arrived off Port Said at 3 p.m. on Monday the 14th, but in steering for the harbour, while following the pilot-tug, she unfortunately took the ground on the shoal water near the entrance to the channel, with the result that, after parting two cables, and making various attempts to get clear, she finally remained hard and fast about a mile to the N.E. of the entrance; there was a strong breeze and current on her starboard beam at the time, to which in the main the accident was probably due. Owing to the rough weather no assistance could be tendered to her before Wednesday morning, when, the sea becoming calmer, the work of lightening the ship was begun, but it was not until Friday morning that she was successfully floated off by the S.S. "Pectan," after continually towing for twenty-two hours. Fortunately the ship does not appear to have suffered any damage; before she came off she was lightened to the extent of 1,100 tons, 200 tons of water having been pumped out of the ship, and 900 tons of dead weight, in the shape of coal, ammunition, projectiles, and provisions, being put into lighters. A court-martial was subsequently held, and Captain Schomberg and his Staff-Commander were both severely reprimanded.

The first-class battle-ship "Cæsar," having had the defects in her gun-mountings made good, has joined the Channel Squadron, taking the place of the "Victorious." The second-class cruiser "Thetis" has been commissioned to relieve a sister-ship, the "Sybille," in the Mediterranean. The "Sirius," having returned to England with the relieved crews of the "Surprise" and "Hebe" from Malta, is to take out a new crew to Bombay for the first-class gun-boat "Pigeon." The sloop "Buzzard" was paid off on the 18th ult., and placed in the C Division of the Sheerness Dockyard Reserve. The first-class cruiser "St. George," lately flag-ship on the Cape station, was paid off at Portsmouth, on the 18th ult., and is to be brought forward for again commissioning. The third-class cruiser "Racoon" had a successful full-speed natural-draught three hours' commissioning trial, with the following results:—Pressure of steam, 125·5 lbs.; air pressure, ·55 inch; vacuum, 21·5 inches; revolutions, 134; I.H.P., 2,896·2; speed, 15·3 knots. The "Racoon" left on the 13th ult. for the East Indies to relieve the "Brisk," a sister-ship.

*Further Trials of the new First-class Cruiser "Diadem."*—The "Diadem" has been carrying out a further series of experimental trials, having been required to steam for four hours with a view to ascertaining whether she could, with only 78 per cent. of her boiler-heating surface, obtain the same power as was required of her at her full-power trial on the 26th January. According to the contract stipulation, she then had to obtain, on an eight hours' run, a mean of 16,500-I.H.P., but, as a fact, the mean obtained was as high as 17,188-I.H.P. Drawing 24 feet 3 inches forward, and 26 feet 6 inches aft, with 291 lbs. of steam in the boilers, and with a vacuum of 27·2 inches starboard and 26·3 port, she, on the 29th January, worked up to 116·2 revolutions starboard and

116·4 port. The conditions of this trial and the previous ones thus offered some striking differences and similarities, for while on the last occasion the whole of the 30 boilers were in use, on the new trial only 24 were lighted up. The draught of water on each occasion, as well as the vacuum, was about the same; the steam in boilers was 291 lbs. at both trials, while at the more exacting test there was a slight reduction in the number of revolutions—namely, from 119·1 to 116·3. On this occasion, however, forced draught was used for the first time, but the air-pressure amounted to only three-tenths of an inch, and the total I.H.P. was 8,168 starboard and 7,693 port, giving a collective I.H.P. of 15;861. This result gave a unit of power for less than 2 square feet of heating surface, which is the forced-draught surface allowed in cylindrical boilers in the Navy. Contrary to the usual practice at forced-draught trials, the coal consumption was taken, and worked out at the exceedingly low average of 1·95 lbs. per I.H.P. per hour, thus further showing a considerable gain by the use of the improved Belleville boilers, while the power was easily maintained. The temperature in the stoke-holds and engine-room was comparatively low, and there was again a marked absence of dense smoke, flame, and clinker from the funnels. The trial fully demonstrated that, should one boiler compartment be disabled in action, the design power of the ship could still be reached, and though the trial was limited to four hours it was evident that the engines and the ship could have stood the test for a considerably longer period. It was also shown by the result of the trial that in no ship has such high evaporative efficiency been realised from the Belleville boiler. At the 30 hours' trial with four-fifths of her power some difficulty was experienced in consequence of the frequency with which the fusible plugs were blown out, but after that trial the faces of the plugs were so hammered out that none were blown from their position during the trial on the 29th, and thus the use of the distillers for the supply of water to make good the loss of steam was obviated. As stated in previous reports, the ship was remarkably steady, no marked vibration being shown at any speed.

On the 6th ult. the cruiser continued her progressive trials in Stokes Bay. She first made four runs over the measured mile at 16 knots, then four runs at 14 knots, and, after swinging for the adjustment of compasses, four runs at 10 knots. In each set of runs the power and speed corresponded with the results that were anticipated from the model trials at Haslar experimental works. The mean of the first set of runs showed that 6,270-I.H.P. gave her a speed of 16·010 knots. The mean of the second set of runs was a speed of 14·59 knots, produced with 4,430-I.H.P., and the third set of runs gave a mean speed of 11·07 knots for 1,923-I.H.P. The trial was regarded as highly satisfactory.

On the 8th ult. she left for a further stage of her experimental trials and anchored at Spithead the next evening. She first steamed for 15 hours with only eight boilers, and with 270 lbs. of steam in the boilers and 250 lbs. of steam at the engines. At this stage of the trial the revolutions were 64·3 starboard and 65·1 port, while the collective I.H.P. was 3,266. The coal consumption worked out at 2·35 lbs. per unit of power per hour, which was in fairly close keeping with her preliminary 30 hours' trial with the same power, when the consumption was 2·33 lbs. During the second phase of the trial, which also lasted 15 hours, there were 260 lbs. of steam in the boilers, but only 150 lbs. at the engines. Sixteen boilers, however, were used, and it was found that with 88·9 revolutions starboard and 90·1 revolutions port, and with a collective I.H.P. of 7,119, the coal consumption was 1·94 lbs. per unit of power per hour. Both stages of the trial justified the calculations of the Admiralty when the vessel was designed.

The final trial, concluded on the 11th ult., was for 30 hours, with only 24 boilers in use, in order to obtain *data* as to coal consumption. The draught of water forward was 24 feet 4 inches, and aft 26 feet 6 inches. The steam in the boilers was at a pressure of 265 lbs. per square inch, the vacuum being 26·3 inches starboard and 25·7 inches port. The mean of the 30 hours gave 106·5 revolutions

starboard and 108 port, and the collective I.H.P. was 12,852. The coal consumption worked out at 1·88 lbs. per unit of power per hour. In this trial the vessels developed her maximum continuous steaming power with 78 per cent. of her boiler-heating surface, and it was obtained under natural-draught conditions, but with the fans moving slowly to ventilate the stokeholds. Although the coal was hand-picked, so much clinker was formed that after the first four hours of the run it was found necessary to clean out the fires every eight hours, but in spite of this drawback all the required results were obtained with only 2·45 square feet of heating surface per I.H.P. There was very little smoke and no flaming at the funnels. The course taken was from Spithead to Hastings, then a long run to the westward as far as the Scilly Islands, and then back to Spithead. The speed was not officially recorded, but the distance of 215 miles between Beachy Head and the Lizard was travelled in 10 hours 40 minutes, giving a speed of fully 20 knots, thus confirming the *data* obtained on the official runs between Rame Head and Dodman Point. The vessel has throughout the trials been uniformly successful, and though she has been favoured on the whole with fine weather she ran into a stiff breeze and a heavy sea early one morning, when her sea-keeping qualities were well tested, with the most satisfactory results.

The official two hours' trial of the "Woodlark," one of the shallow-draught armed river steamers recently ordered by the British Government, has lately taken place on the Thames. The vessel, which has been built by Messrs. John I. Thornycroft and Co., is 145 feet long and 24 feet broad. The draught of water was not to exceed 2 feet when loaded with 30 tons dead weight, and the speed under these conditions was to be 15 miles per hour. The mean draught of water on trial was found to be 1 foot 11½ inches, and the vessel covered 30¾ statute miles in two hours. She is armed with Q.F. and Maxim guns, and the sides above the water-line and the deck in the wake of the machinery are protected with Cammell's bullet-proof steel plating. The "Woodlark" is fitted with Thornycroft's twin screw-turbine propellers in raised tunnels, and is the fastest of the gun-boats of this class hitherto constructed. Her speed astern was found to be 4¾ miles per hour, and she proved to be under control when going astern.

The new torpedo-boat destroyer "Flying Fish," built and engined by the Palmer Shipbuilding Company, has completed her initial three hours' coal-consumption trial at Portsmouth. The mean of six runs over the measured mile in Stokes Bay gave her a speed of 30·361 knots, with 390·7 revolutions a minute, while with 393 revolutions for the three hours the speed by patent log was 30·484 knots. The I.H.P. on the mile was 6 431, and for the three hours 6,457, showing remarkable uniformity in both phases of the trial. There was an abundance of steam throughout the run. The "Violet," another new destroyer, has carried out her 12 hours' economical coal-consumption trial at Portsmouth. She was required to steam at 13 knots with a coal consumption not exceeding one ton per 30 miles. The mean speed of the 12 hours was 13·008 knots, and the consumption 1·99 lbs. per unit of power per hour. The average worked out at 36½ miles per ton of coal, and, as the vessel carries 84 tons of fuel, this gives her a radius at economical speed of 3,066 miles.

An official return shows the speed trials of war-ships. Of torpedo-boat destroyers fifteen have passed successfully through the trials during the past year, one of them being a 27-knot boat, while the others are of 30-knot design. Messrs. Laird, of Birkenhead, and Messrs. Palmer, of Jarrow-on-Tyne, appear on the list for five boats each, Thornycroft for three, and the Fairfield Company for the fifteenth 30-knot boat. In each case the boats had to run for three hours for speed, and again for three hours at full speed to ascertain the consumption of coal, and it was a condition that, should the average rate of consumption exceed 2·5 lbs. per I.H.P. per hour, an extra load would have to be carried in the speed trial, this extra load to be equivalent to the excess in consumption over a given period. Only five out of the fifteen boats seem to have come within the

2¼ lbs., the highest rate of consumption having been 2·77 lbs., in the case of one of Palmer's boats; but it is difficult to understand how in the case of Thornycroft's three boats there should be such variation as 2·08 lbs. in one case, 2·2 lbs. in another, and nearly 2·6 lbs. in a third, when all three boats, engines, and boilers were the same. The difference is equal to over 1¼ tons per hour, and is probably attributable only to the stoking. Laird's boats' consumption varies less, between 2·41 and 2·53 lbs. per I.H.P., while Palmer's varies between 2·42 lbs. and 2·76 lbs. The Fairfield Company's "Osprey" appears as burning 2·58 lbs. per I.H.P. per hour. As to power, this necessarily would be affected by weather, etc., but there are also wide variations. The highest is 6,606-I.H.P. for 30·142 knots in the case of Laird's boat, the "Panther," but Fairfield is not far behind with 6,588-I.H.P., but for this she has the best speed on the list. One or two of the boats, especially those of Thornycroft, got their speed for less than 6,000-I.H.P.; the lowest was 5,654-I.H.P. for 30·184 knots. Messrs. Laird's boats range about 6,000 to 6,200, with the exception already given. The highest speed was got with the Fairfield boat, which made 30·674 knots when developing 6,588-I.H.P., and on another trial 30·427 knots for 6,412-I.H.P. So that the high power was in their case well justified by events. Palmer's "Chamois" comes next with 30·396 knots for 6,265-I.H.P.

An important experiment in coaling, intended to test the capacity of the port for dealing with war-vessels on a large scale, took place at Portsmouth last month, when the operation of filling the bunkers of four battle-ships, forming the Portsmouth division of the Channel Squadron, was started simultaneously. Large quantities of coal had been stored in barges and on the jetties at the coaling points, and shortly after daybreak the task was commenced. The programme was for the "Majestic" (flag-ship) to take 1,020 tons on board, the "Mars" 1,050 tons, the "Prince George" 650 tons, and the "Resolution" 1,295. The work was carried out by the crews of the war-vessels, no extra staff having been detailed to assist. Of the four ships the "Mars" did much the best, getting her 1,050 tons on board in nine hours. The percentage worked out at 116·7 tons per hour, the best yet made by her. Next came the "Prince George," with a percentage of 110 tons per hour for the five hours it took to ship her 650 tons. The "Resolution" had the largest quantity to take in, but did not make nearly so good a record as the before-mentioned ships—700 tons was all she took in in eleven and a half hours; while in twelve hours the crew of the "Majestic" put 800 tons into her bunkers. A special report has been forwarded to the Admiralty in reference to the test of the coaling appliances at Portsmouth in connection with this latest coaling experiment. Although the "Mars" was an easy first as regards the time occupied in the work, it has to be borne in mind that she enjoyed exceptional advantages, the dockyard steam capstans being employed in addition to her own appliances. Moreover, while the other ships received coals on one side only, the "Mars" was plied with "black diamonds" on both sides. The work of coaling the "Resolution" was delayed by the breaking down of a part of her gear. The battle-ship "Magnificent," flag-ship of Rear-Admiral J. Fellowes, C.B., second in command of the Channel Squadron, and the "Blake," cruiser, also engaged at Devonport in a coaling competition, similar to that which took place at Portsmouth in connection with the Eastern Division of the squadron. The colliers were alongside the ships at daybreak, and the keenest rivalry existed for the first two hours, when, by signals which repeatedly passed between the vessels, it was found that the "Magnificent" was leading. In six hours and three-quarters she got on board 979 tons, or an average of over 140 tons per hour, so that she has the distinction of having beaten her consorts in the Channel Squadron. The "Blake" took in only 740 tons in ten hours. Whether the facilities were the same at Devonport and Portsmouth is not known.—*Times* and *Naval and Military Record.*

## THE NAVY ESTIMATES.

The following is a *Précis* of the statement of the First Lord of the Admiralty, explanatory of Navy Estimates, 1898-99, presented to Parliament :—

The Navy votes for 1898–99 amount to a net total of £23,778,000, as compared with the original Estimates of £21,838,000 in 1897–98, to which, however, a sum of £500,000 was added in the month of July under special circumstances.

As in the present financial year, so in that for which estimates are now submitted, the increased number of officers, men, and boys proposed necessitates a further increase in nearly every vote connected with the *personnel*. The aggregate of these votes exceeds by £446,300 the provision made for the same services in 1897–98.

The works vote for the coming year does not differ materially from that of the present year. On the other hand, certain miscellaneous votes show an aggregate increase of £47,600. The ordnance vote still remains extraordinarily high, viz., at £2,549,200, but it is less than the corresponding vote for 1897-98 by £125,800, the decrease being due partly to the completion of some heavy orders for guns, and partly to the application of a sum of £90,000 in the present year, under Treasury sanction, out of the savings under other votes, in relief of ordnance expenditure in 1898–99.

The shipbuilding vote shows an increase of £1,571,000 over the original estimate of 1897–98. But of this a sum of about £1,400,000 represents provision for expenditure which, but for the prolonged labour difficulties, would have been met in the present financial year. Further explanation of the effect of these difficulties on the shipbuilding programme will be found in a subsequent paragraph.

### NUMBERS.

The total number of officers, seamen, boys, coastguard, and Royal Marines voted for the year 1897–98 was 100,050, an increase on the previous year of 6,300.

The additional numbers entered were distributed, as always, over the whole year, each month showing an increase on its predecessor. Any average, therefore, of the numbers borne over the entire year must be delusive, and a column has been introduced in Vote A showing the actual number of officers, men, and boys borne on the latest date available before the printing of the Estimates. The number so shown on January 1st, 1898, was 97,518, but it is now possible to state that on February 1st the numbers stood at 98,652. It may be regarded as certain that the aggregate numbers voted will be practically obtained by April 1st.

Some slight changes have been made in the form of Vote A, with the object of making the tables clearer.

In accordance with the intention announced during the discussion of the Estimates in the House of Commons last year, the Estimates for the year 1898–99 include provision for a further increase of 6,340. It is made up as follows :—

| | |
|---|---|
| 200 | officers. |
| 2,400 | seamen. |
| 284 | engine-room artificers. |
| 1,700 | stokers. |
| 1,000 | Marines. |
| 456 | artisans and miscellaneous. |
| 300 | boys under training. |
| 6,340 | |

Further increases in the established lists of various classes of officers have been rendered necessary, and Orders in Council have been obtained for these. Among others, the establishment of engineer officers has been raised from 850 to to 950, including 50 warrant officers, called "artificer engineers," and that of accountant officers from 500 to 550

*The Royal Marines.*

Recruiting for the Marines has been exceptionally active during the past year, when 1,000 additional men were to be entered. The total number of recruits raised during the year was 2,665.

The class of recruit taken was fairly up to the average as to physical conditions, age, and stature, notwithstanding the additional numbers necessary to be raised. The standard height for growing lads, under 20, averaged, on entry, a little below 5 feet 6 inches for infantry recruits, and fully 5 feet 7½ inches for artillery recruits, with a minimum chest girth of 33 inches. Very few recruits were received over 20 years of age, but a considerable number entered between 17 and 18 years.

The Estimates for 1898–99 provide for a further increase of 1,000 men to the corps.

*Royal Naval Reserve.*

The total number of officers now on the active lists who have served for twelve months or more in the Navy, or who are now undergoing twelve months' training, is 225, an increase of forty-two since last year.

Provision will be made in the coming Estimates for increasing the executive officers' list by 100.

The Royal Naval Reserve of Officers is so popular, and the great mercantile marine companies do so much to encourage their officers to join it, that at the present moment, when there is not a vacancy on the lists, there are at the Admiralty 154 applications for entry from eligible candidates.

Instruction was given to a small experimental class of engineer officers, Royal Naval Reserve, in the Portsmouth Steam Reserve, between October 1st and December 31st, 1897, to enable them to acquire a knowledge of the working of the engines and boilers used in Her Majesty's ships. Similar classes will be formed this year.

Since the introduction of the new scheme for the entry and training of Royal Naval Reservemen, on May 1st, 1897, 1,815 men have been enrolled in the new "Seamen" Class, and the numbers voted for 1897–98 are complete.

It is as yet premature to judge of the probable result of the changes announced last year with the view of putting a larger number of men through a six months' training in the Fleet. At first there appeared to be some hesitation on the part of the men in coming forward for this training, and on inquiry it appeared that some small modification in the regulations was desirable. Accordingly, the age was reduced from 19 to 18 years, as it was felt that the younger men would adapt themselves more easily to the different life on board a man-of-war; and for the same reason it was decided that young men should be allowed to embark direct for six months' training as soon as they had completed twenty-eight days' drill, instead of first serving for two years in the Reserve, provided they were well reported upon. At the completion of their drill, and having passed the required examination, they might be rated "qualified" seamen at the age of twenty.

The number for which it is considered that accommodation can advantageously be found on board ships at one time is 600. At the present time 543 are embarked.

The drill-ships and batteries have now been supplied with the Lee-Metford magazine rifle, and the Royal Naval Reserve are being instructed in the use of that weapon.

Six hundred and forty-seven seamen and 125 firemen of the Reserve were embarked for service during the 1897 Naval Review and subsequent cruise in 35 different ships, and were well reported upon, especially the firemen.

It is proposed to raise the number of men voted by 500 firemen, making a total of 22,000 seamen, 3,500 firemen, and 300 boys.

### Mobilisation.

The number of vessels and torpedo-boats taking part in the manœuvres was 165, manned by 37,619 officers and men, as compared with 105, manned by 20,500 officers and men, in the manœuvres in 1896.

The whole of these ships went to sea practically fully officered and manned. The deficiencies, which were slight, were mainly among the medical and accountant officers, and in the carpenter ratings. The total number of coast-guardsmen embarked was 1,788; and of the Royal Naval Reserve, officers and men, 819.

The system of relieving the older ships on foreign stations by larger modern vessels of greater speed and carrying more powerful armaments continues to be carried out. Modern battle-ships are also relieving the older vessels as coast-guard and port-guard ships both at home and abroad. An additional port-guard ship ("Hotspur") has been established at Bermuda, and the "Monarch" has been stationed at the Cape to replace the "Penelope."

The senior officer in charge of the squadron on the South-East Coast of America has been given the rank of commodore second class, and a larger cruiser has been sent to relieve the present senior officer's ship.

### New Construction.

Expenditure on new construction has been most seriously affected by the prolonged labour difficulties, which lasted from July to the beginning of February. Payments to contractors have been so disarranged by the suspension of work that even at the present date it is not easy to foresee the exact amount by which the anticipated expenditure on new construction will fall short. The best estimate which can be made at the present time is that it will amount to about £2,270,000. Of this sum, £1,400,000, as stated before, will fall on 1898-99, the remainder on 1899-1900 and 1900-01.

In the case of many contracts spreading over several years the postponement of the work for six or seven months throws forward all the instalments to later dates than were originally anticipated, except so far as arrears can be made up.

The difficulties in question have affected propelling and auxiliary machinery, gun-mountings, armour, and other important classes of material.

The indirect effects of the labour difficulties have, of course, not been confined to contract ships.

In the dockyards the delays on the part of contractors in the completion and delivery of machinery, armour, etc., have involved considerable difficulty in carrying on the work of construction in the manner essential to the earliest possible dates of completion of ships. Delays have occurred also in the steam and gunnery trials of certain ships which otherwise would have been completed and ready for service.

On the contract side of the shipbuilding programme the difficulties have been much greater, not merely in the form of arrested progress on work directly affected by the labour dispute, but also in the retardation of work on the hulls and fittings of ships. A less number of men has consequently been engaged on these classes of work than would otherwise have been employed; and a considerable number of ships, which (in the ordinary course) would have been delivered and completed during 1897-98, are still in the hands of contractors.

Details of these delays are given hereafter, but, broadly speaking, it may be stated that the actual dates of completion for service of many important ships will be deferred by an interval practically equal to the time over which the dispute has extended.

#### *Shipbuilding in 1897-98.*

#### *Battle-ships.*

It was anticipated in the First Lord's statement of last year that the "Cæsar," "Illustrious," and "Hannibal," would be completed towards the autumn of 1897.

The "Cæsar" was completed rather later than the time anticipated, her trials being delayed. She is now in commission. The completion of the "Illustrious" was greatly delayed by the postponement of her steam trials in consequence of the labour difficulties; and subsequently by the fact that the earlier steam trials were not satisfactory.

It is now anticipated that both the "Illustrious" and the "Hannibal" will be practically completed at the close of the financial year.

Six battle-ships of the "Canopus" class have been in progress in 1897-98. Three of these are building in the dockyards, and all of them have been seriously affected by the delays above mentioned in contract portions of the work.

The "Canopus" was launched in October last, and the dockyard expenditure and progress have been nearly in accordance with the programme; but work on propelling and other machinery, gun mountings, and armoury, is much in arrear.

Work on the hulls of the "Ocean" and "Goliath" has been hampered by the non-delivery of important castings by contractors. The date of launch of the "Goliath" has, in consequence, been postponed for several months; but while the order in which the work has been performed has necessarily been altered, good progress has been made in other directions, and this ship, as well as the "Ocean," will be in a very advanced condition when launched. Their final dates of completion will be dependent on the contract portions of the work.

The "Albion" and "Glory" are building in private yards. Satisfactory progress has been made on the hulls, although work on the engineering side has been seriously delayed.

Provision was made in the Estimates for 1897-98 for the commencement of four new battle-ships of the first-class. One of them, the "Vengeance," which is building by contract, is of the "Canopus" class, the other three, building in the dockyards, are of the type now called the "Formidable" class. Particulars of the design of this class have been communicated to Parliament. They are, practically, improved "Majestics."

As these vessels are to be armed with new and improved patterns of 12-inch and 6-inch Q.F. guns, a longer time than was anticipated has been occupied in settling the design and completing the preliminary trials of the guns. Consequently the completion of the designs of the ships and the commencement of the work of construction have been deferred to a somewhat later date than was contemplated.

The dockyards are now in possession of the necessary information, and the work of providing the materials and carrying out the preliminary stages of construction is in hand.

*First-Class Cruisers.*

The "Diadem" is the only vessel of her class which has been delivered by contractors during 1897-98. She has passed through her steam trials satisfactorily, and will shortly be completed for service.

The "Europa" and "Niobe" would, apart from the labour difficulty, have been delivered practically at the same time as the "Diadem." It is now anticipated that they will be delivered early in the next financial year.

The "Andromeda" and "Spartiate," at Pembroke, have been satisfactorily advanced, and the former will leave that yard for completion at Portsmouth in the autumn.

Three other vessels of the class building by contract have been considerably delayed. In the case of the "Argonaut," which was launched in January, 1898, two serious fires in the works of the contractors greatly retarded the work. The sister-vessels, "Ariadne" and "Amphitrite," have been delayed in consequence of the labour difficulty in the engineering trade, although the contractors have done all in their power to advance the work on the hulls.

The commencement of the four armoured cruisers, of the "Cressy" class, which were described to the House in July last, has, as in the case of the "Formidable"

class, been delayed by the fact that the introduction and trial of the new types of 9·2-inch and 6-inch Q.F. guns, with which these vessels are to be armed, involved a considerably longer period than was anticipated, and consequently retarded the completion of the design.

Tenders have now been invited for these vessels, and it is anticipated that the orders will be placed by the end of the present financial year.

*Second-Class Cruisers.*

In consequence of the labour difficulties, only one of the four vessels of the "Arrogant" class has been completed for service. The "Arrogant" has passed successfully through her steam, gunnery, and steering trials, and is now attached to the Channel Squadron. The other three vessels are far advanced, and it is anticipated that they will be completed at an early date.

The three new vessels of the modified "Talbot" class ("Hermes," "High-flyer," and "Hyacinth") are building by contract. Their progress, too, has been considerably retarded.

*Third-Class Cruisers.*

Five contract-built vessels of this class are still in the hands of the contractors. Apart from delays consequent on the labour difficulty, they would have been completed for service, and several of them have been in commission. Now that work has been resumed, it is anticipated that they will be delivered in the course of a few months.

The completion of the two most advanced dockyard ships of this class has also been affected by the same circumstances, but considerable progress has been made on the hulls of the three vessels of this class commenced in the dockyards in this financial year.

*Sloops and Gun-boats.*

The two sloops ("Condor" and "Rosario") building at Sheerness Dockyard have been advanced as intended.

The four twin-screw gun-boats for special service, building by contract, have been commenced, but not advanced so far as was proposed.

*Torpedo-Boat Destroyers.*

Of the 42 earlier torpedo-boat destroyers of 26 to 27 knots speed, all but five have been delivered. The difficulties which have delayed the completion of these vessels have now been practically surmounted, and it is anticipated that they will be all delivered and ready for service in the course of the coming financial year.

Forty-five torpedo-boat destroyers, with contract speed of 30 knots, were in construction at the beginning of 1897-98, and five more vessels of similar character have been ordered during the year, making 50 vessels in this group. The labour difficulty has been the cause of very serious delay. Twenty of them have successfully passed all their official trials. Five others are now undergoing their trials, being otherwise practically completed. The completion and delivery of the remaining vessels of the class should take place at intervals during the coming financial year.

Three experimental destroyers, of 32 to 33 knots speed, were ordered before the beginning of the financial year. Their progress has been seriously hindered by the dispute in the engineering trade. On two of them substantial progress has been made.

A further order has just been placed for an experimental vessel in which the steam turbine will be substituted for the ordinary reciprocating type of machinery, in order to test the applicability of the system to torpedo-vessels of exceptionally high speed.

*Shallow-Draught Steamers.*

This flotilla of light-draught gun-boats, eight in number, particulars of which were stated to the House, will all be completed by the close of the financial year. Two of them are already on service on the Niger.

They are in many respects of novel type. The stipulated conditions for draught and speed were satisfactorily fulfilled by the contractors.

*New Royal Yacht.*

This vessel has been commenced at Pembroke, and substantial progress will have been made upon her by the close of the financial year. It is proposed to make her ready for launching early in 1899.

NEW SHIPBUILDING PROGRAMME.

In the coming financial year it is proposed to commence three battle-ships, four armoured cruisers, four sloops.

Of these the three battle-ships and two sloops will be built in the dockyards, and the remainder by contract in private yards.

The number of men in the dockyards will be retained at their full strength, but the work already in hand will render it improbable that slips for all three battle-ships will be available till the beginning of 1899-1900. But as it is essential that rapid progress should be made with these ships at the earliest date when they can be commenced, the preparations to build, and the earlier stages of construction, are provided for in 1898-99.

*Summary of New Construction.*

From the preceding statement it will be seen that, including new orders, the following vessels will be under construction or completing during 1898-99:—12 battle-ships, 16 first-class cruisers, 6 second-class cruisers, ten third-class cruisers, 6 sloops, 4 twin-screw gun-boats, 41 torpedo-boat destroyers, Royal yacht.

*Machinery and Boilers.*

Since last year's statement was issued, the following ships, which it was stated would probably be tried before April 1st, 1897, successfully passed through their trials before that date:—The first-class battle-ships "Mars" and "Jupiter," the second-class cruisers "Doris" and "Isis," and four torpedo-boat destroyers.

The following vessels have satisfactorily completed their contract steam trials during the present financial year:—Battle-ships "Cæsar" and "Hannibal," first-class cruiser "Diadem," and second-class cruiser "Arrogant," and 20 torpedo-boat destroyers of 30 knots speed.

The trials of the first-class battle-ship "Illustrious" and the second-class cruiser "Furious" will probably be completed before the end of the current financial year.

The machinery of many more vessels would have reached the trial stage during this financial year had it not been for the delay caused by the labour difficulties.

The trials of the "Diadem" are of interest, as she is the first ship with Belleville water-tube boilers which have been fitted with economisers, and the results obtained are very satisfactory in regard to economy of fuel, efficiency of combustion, ease of working, and of maintaining the specified powers.

The experiments to be made with different types of water-tube boilers in torpedo gun-boats have not as yet been carried out, but it is expected that the "Salamander," with Mumford boilers, and "Seagull," with Niclausse boilers, will be tried at an early date.

The "Powerful" has been commissioned and is now on the China station. Her boilers have fully answered the expectations, but trouble has been experienced with her machinery. It is anticipated that, when more experience has been gained on service of the working of her propelling and auxiliary machinery, the present difficulties will be overcome.

*Armour.*

During the last 12 months several important experiments have been made on armour plates of improved quality, and contracts have been arranged on the basis of these experiments.

The output of armour has been seriously reduced in consequence of the dispute in the engineering trade. In addition, the introduction of new qualities of armour has necessitated considerable alterations and additions of plant, which have temporarily diminished the output. These difficulties are gradually disappearing, and in the coming year it is anticipated that much larger deliveries will be made.

*Naval Ordnance.*

The manufacture of guns is proceeding satisfactorily, and the production is keeping pace with the requirements of the Fleet.

The conversion of 6-inch and 4-inch B.L. guns to quick-firers will be completed at an early date in the financial year of 1898-99.

A new and more powerful 6-inch Q.F. gun than the present one has, after exhaustive trials, been adopted, and its manufacture for future ships is proceeding. For the first time since the introduction of Q.F. guns it has been found possible to produce a gun which, whilst able to fire with safety and rapidity, does not require the expensive and heavy brass cartridge case which has hitherto been thought indispensable. The adoption of this plan will cause a great saving in the cost and weight of ammunition and of the space required to stow it.

The heavy guns for the main armaments of the new battle-ships and the first-class cruisers of the 1897-98 and future building programmes will be much more powerful weapons than the present corresponding guns afloat. Their manufacture has been commenced.

The supply of cordite charges to the Fleet is proceeding satisfactorily, and it will be further extended as the present stocks of gunpowder are reduced.

The equipment of the Fleet with the Lee-Metford magazine rifle will be completed by March 31st, and the difficulties in finding ranges suitable for this new arm are being gradually overcome.

During the year the withdrawal from the Service of some of the earlier types of Whitehead torpedoes has been carried out, the torpedoes withdrawn having been replaced by others of more modern date.

*Gun Mountings.*

The manufacture of gun mountings of all types is proceeding satisfactorily. Great attention has been devoted to the development of all appliances which experience has shown will improve the rapidity of fire, and at the same time simplify, as far as possible, the machinery necessary for the working of modern heavy guns of great power.

There is every reason to believe that, when the heavy gun mountings to the new designs are completed, a great improvement will have been achieved.

For the new 6-inch Q.F. gun, designs of mountings are still under consideration, in which various improvements on existing types have been introduced. The designs will be settled very shortly, and manufacture will proceed at once.

NEW WORKS.

*Progress under the Naval Works Acts.*

(A)—*Enclosure and Defence of Harbours.*

*Gibraltar.*—On the Admiralty Mole Extension a length of about 1,000 feet has been brought up above low-water level. Beyond this point about 200,000 cubic yards of rubble have been deposited on the line of the mole. About 450 feet of the quay wall on the harbour side of the mole has been finished, and another 450 feet is in hand.

It was originally intended to construct the last 1,750 feet of this mole of concrete blocks to the same section as the Detached Mole, but there has been such serious delay in the delivery of the block-making machinery that it has now been decided to carry the rubble mound section the whole length of the extension. The work as thus modified will, it is expected, be brought up to low-water level by December 31st next.

The rubble mound of the Detached Mole is completed, and the manufacture of concrete blocks for it has been begun. The two Titan cranes required for block setting are to be erected ready for use at Gibraltar on September 30th, 1898, and January 31st, 1899, by which time it is hoped that there will be sufficient seasoned blocks to keep them steadily at work.

Over 600,000 tons of material have already been dredged from the harbour. Two dredgers are at work.

*Gibraltar Commercial Mole.*—The wharf wall on the north-east of the old mole is in progress, and about 20,000 cubic yards of filling have been deposited on the reclamation. The rubble base of the outer arm of the new mole is in progress.

*Portland.*—About 400,000 tons of stone have been deposited on the line of the new breakwater. A contract has been made for the completion of the work, the whole of which is to be brought up to low-water level not later than September 21st, 1899.

*Dover.*—The contract for this work was signed in November last. The extension of the Admiralty Pier is to be completed in eight years, and the rest of the work in ten years, from the acceptance of the tender.

(B)—*Adapting Naval Ports to Present Needs of Fleet.*

Deepening harbours and approaches.

*Chatham.*—The work was finished last year.

*Portsmouth.*—Fountain Lake has been dredged to 25 feet at low water. Six berths for battle-ships and one for cruisers have been completed.

*Devonport.*—The dredging in the Sound has been finished. The removal of the Vanguard and Cremoll shoals and the Rubble bank is being carried out by contract, and about 400,000 tons of material have been dredged. This work will be completed within the financial year 1898-99.

*Keyham Dockyard Extension.*—The coffer-dams for excluding the water are nearly completed.

The excavation for the east wall of the closed basin has been taken out to full depth for a length of 825 feet from south end, and to a depth of 23 feet below coping for a length of 300 feet from north end. The wall has been constructed for a length of 520 feet to level of 4 feet below coping, except where a space has been left for foundation of the sheers, and a further length of 100 feet is built to level of 23 feet below coping, and a length of 205 feet to level of 31 feet below coping.

In Dock No. 4 a commencement has been made in setting the masonry for the lower altars in the east wall, and a length of 400 feet of concrete foundation has been placed in the west wall. Good progress has been made with the excavation for the wall across the head of the dock.

The pump wells and the culverts are in progress.

*Portsmouth Docks.*—The two new docks have been completed.

*Gibraltar Dockyard Extension.*—Twelve acres of the reclamation have been completed. The tunnel has been driven for a length of about 860 yards, being about two-thirds of the total length.

The deepening of the Auxiliary Boat Camber is in progress, and about 10,000 cubic yards of rubble have been deposited in the embankment.

The excavation of the New Mole parade and the retaining walls have been completed. The excavation at the head of No. 1 dock is in progress.

*Hong-Kong Dockyard Extension.*—Plans are in hand, but the negotiations for the acquisition of the necessary land have been unexpectedly difficult and prolonged, and the Admiralty are not yet in possession of the land to be acquired from the War Office and private owners.

*Colombo Dock.*—This dock is to be constructed by the Colonial Government, with whom the necessary agreements have been made.

The works at Pembroke and Haulbowline and the widening of the caisson at Portsmouth are in hand.

(c)—*Naval Barracks, etc.*

*Chatham Naval Barracks.*—The War Office are proceeding with the reconstruction of the Brennan Torpedo Factory, which occupies part of the site of two of the new barrack blocks. The cost of this work will be borne by the Naval Works Loan. The contract for the new barracks has been signed and work has been commenced.

*Sheerness Naval Barracks.*—The plans have been completed.

*Portsmouth Naval Barracks.*—The War Office have transferred the Anglesea Barracks, but payment has not yet been made for them. Plans for the new barracks have been approved.

*Keyham Naval Barracks.*—The contract for this work has been made.

*Chatham Naval Hospital.*—Plans have been approved and tenders will shortly be invited.

*Walmer Marine Depôt.*—Keyham Engineers' College.—These works are completed.

*Dartmouth College.*—Plans prepared by Mr. Aston Webb are now under consideration, but the Admiralty have not yet obtained possession of the land.

*Magazines.*—Work is steadily proceeding at Woolwich, Portsmouth, Devonport, Gibraltar, and Malta.

Plans for the hospital extensions at Haslar and Haulbowline have been approved.

The expenditure during the year has fallen so far short of the large sum granted by Parliament that sufficient funds are available for carrying on the works during the financial year 1898–99. It is therefore not proposed to introduce a new Naval Works Bill this Session.

The following is an abstract of the Navy Estimates for 1898-99, and a comparison, showing increases and decreases, with the corresponding votes for last year :—

| Votes. | —— | Net Estimates. | | Difference on Net Estimates. | |
|---|---|---|---|---|---|
| | | 1898-99. | 1897-98. | Increase. | Decrease. |
| | I.—Numbers. | | | | |
| A | Total Number of Officers, Seamen, Boys, Coast Guard and Royal Marines | Total Numbers. 106,390 | Total Numbers. 100,050 | Numbers. 6,340 | Numbers. — |
| | II.—Effective Services. | £ | £ | £ | £ |
| 1 | Wages, etc., of Officers, Seamen and Boys, Coast Guard and Royal Marines | 4,988,000 | 4,696,000 | 292,000 | — |
| 2 | Victualling and Clothing for the Navy ... ... | 1,491,700 | 1,384,600 | 107,100 | — |
| 3 | Medical Establishments and Services ... ... ... | 167,000 | 161,400 | 5,600 | — |
| 4 | Martial Law... ... ... | 11,400 | 10,600 | 800 | — |
| 5 | Educational Services ... | 86,600 | 85,600 | 1,000 | — |
| 6 | Scientific Services .. ... | 67,200 | 66,700 | 500 | — |
| 7 | Royal Naval Reserves ... | 257,000 | 249,900 | 7,100 | — |
| 8 | Shipbuilding, Repairs, Maintenance, etc.:— | | | | |
| | Section I.—*Personnel* | 2,218,000 | 1,996,000<br>130,000 | 92,000 | — |
| | Section II.—Material | 2,971,000 | 2,024 000<br>40,000 | 907,000 | — |
| | Section III.—Contract Work ... ... ... | 5,612,000 | 5,210,000<br>230,000 | 172,000 | — |
| 9 | Naval Armaments ... ... | 2,549,200 | 2,675,000<br>100,000 | — | 225,800 |
| 10 | Works, Buildings, and Repairs at Home and Abroad | 650,100 | 648,800 | 1,300 | — |
| 11 | Miscellaneous Effective Services ... .. ... | 232,900 | 195,400 | 37,500 | — |
| 12 | Admiralty Office ... ... | 247,700 | 243,600 | 4,100 | — |
| | Total Effective Services... | 21,549,800 | 19,647,600<br>(a)500,000 | 1,628,000 | 225,800 |
| | III.—Non-Effective Services. | | | | |
| 13 | Half Pay, Reserved, and Retired Pay ... ... | 752,500 | 749,500 | 3,000 | — |
| 14 | Naval and Marine Pensions, Gratuities, and Compassionate Allowances .. | 1,082,900 | 1,053,200 | 29,700 | — |
| 15 | Civil Pensions and Gratuities ... ... ... ... | 332,900 | 327,400 | 5,500 | — |
| | Total Non-Effective Services ... ... ... | 2,168,300 | 2,130,100 | 38,200 | — |
| | IV.—Extra Estimate for Services in connection with the Colonies. | | | | |
| 16 | Additional Naval Force for Service in Australasian Waters—Annuity payable under ... ... ... | 60,300 | 60,300 | — | — |
| | Grand Total ... | 23,778,400 | 21,838,000<br>(a)500,000 | 1,666,200 | 225,800 |

Net Increase ... ... ... £1,440,400

(a) Additional estimate, July 21st, 1897.

FRANCE.—The following are the principal appointments which have been made: Rear-Admiral—G. De la Bonninière de Beaumont to Command of Squadron in China. Capitaines de Vaisseau—J. A. Ingouf to "Magenta"; H. E. H. Boué de Lapeyrère to "Laclocheterie," for Command of Naval Division for protection of Newfoundland and Iceland Fisheries; E. B. Ravel to "Carnot"; A. M. Thierry to "Du Chayla"; E. A. Chevalier to "Cassard." Capitaines de Frégate—A. M. de Fésigny to "Papin"; P. Auvert to "Manche"; M. Serpette de Bersaucourt to Command of *Défense-Mobile* of Corsica; E. A. Voiellaud to "Tempête"; C. G. Bongrain to Command of Fixed Defences of Cherbourg.—*Journal Officiel de la République Française.*

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The cuirassé de croisière "Vauban," bearing the flag of Rear-Admiral de Beaumont, has left Toulon for China; before her departure two additional 13·8-cm. (5·3-inch) Q.F. guns were mounted. The new second-class cruiser "Cassard" has left Cherbourg to join the Active Squadron of the Mediterranean Fleet, where she relieves the "Bugeaud," a sister-ship, which is to be placed in the Reserve. The departure of the first-class armoured cruiser "Bruix" for China has again had to be postponed, as on her trial on the 17th ult. it was again interrupted by hot bearings, and she has once more been placed in the dockyard hands. The new second-class cruiser "Du Chayla" has left Cherbourg for the Mediterranean, to join the Active Division of the Mediterranean Fleet, where she relieves the first-class armoured cruiser "Chanzy," which, with a reduced complement, is to be attached to the Reserve Division of the Fleet. The new first-class battle-ship "Masséna" has had another preliminary full-speed trial off Brest, with the following results:—I.H.P. developed, 13,850; number of revolutions, 125·3; mean speed, 16·97; coal consumption per square metre of grate surface, 120 kilogrammes; the H.P. developed by the engines was 250 over the contract power, while the speed was practically that required, viz., 17 knots; her official trials will now be proceeded with. The new second-class cruiser "D'Assas" has also had a successful four hours' full-speed trial off Brest; the engines developed 9,500-I.H.P., according to the contract, which, with 145 revolutions, gave a speed of 19·8 knots, the coal consumption being 119 kilogrammes per square metre of grate. The repairs to the first-class battle-ship "Magenta" having been completed, she was commissioned at Toulon, on the 21st ult., to relieve the second-class battle-ship "Courbet" in the Active Squadron of the Mediterranean Fleet; the last-named ship is to relieve the "Redoutable" in the Reserve Squadron, but during the year she is to be paid off into the second category of the Reserve, when she is to receive new boilers and have her armament altered; four 27·4-centimetre (10·8-inch) guns (model 1893) being substituted for the four 34-centimetre (13·3-inch) guns at present carried in her central redoubt; while the four 27·4-centimetre guns (model 1875) on the upper deck are to be replaced by four 24-centimetre (9·4-inch) guns (model 1893); the "Masséna" was at first ordered to be commissioned in December last, and she was then to have relieved the "Redoutable," but some delay in getting her ready occurred at the last moment.

Two barges laden with the framework of the turrets manufactured at St. Chamond for the new first-class battle-ship "Charlemagne," building at Brest, came into collision while descending the river Rhône, on their way to Arles, and foundered. It was thought that the accident might seriously delay the completion of the "Charlemagne," but the lighters have been successfully raised and refloated, and the delay is not likely to be serious. It has been settled that the water-tube boilers of both the "Charlemagne" and the "Gaulois" are to be fitted with the new economisers, the value of which has so conclusively been shown in the recent trials of the English first-class cruiser "Diadem." The number of elements is 190 for the generators and 250 for the economisers; the number of tubes for the elements of the generators is 2,260, and for the economisers 2,500.

As stated in last month's Notes, the question of making the *Défense-Mobile* of Corsica into an independent group has been under consideration, and the matter has been decided affirmatively. Capitaine de frégate Serpette has been appointed to command the mobile defence of Corsica at Ajaccio, and will have under him a lieutenant who will act as second in command, and an *enseigne de vaisseau*. As no money has been voted in the Budget of 1898 for these extra expenses, it has been decided to economise by placing two second class torpedo-boats in reserve for the current year; the establishment will therefore consist of:—In commission, four first-class and two second-class boats; in reserve, two first-class and four second-class boats.

A court-martial assembled at Toulon on 14th February for the trial of Lieutenant Badin, for the loss of torpedo-boat "No. 133," on 18th November last, off Algiers, when she was sunk by the "Doudart de Lagrée." The court-martial has acquitted Lieutenant Badin, and expressed his approval of his energetic conduct after the accident. The collision was reported in these Notes at the time.

The Minister of Marine, in reply to a question in Parliament, has stated there is no intention of re-establishing the rank of Captain of Corvette. Though this rank exists in the English and German Navies, it is thought to be of no service to lieutenants awaiting promotion; but rather, on the contrary, to detract from their chances of getting a command.

M. Dejeante recently proposed as an amendment in Parliament a reduction in the Naval Estimates of 78,778 francs, and the corresponding suppression of chaplains in the French Navy. Why, said the deputy, should there be chaplains in the Navy, when they have been abolished in the Army? The seamen of the fleet would much prefer an increase in their rations. In replying, the Minister of Marine stated the Government could not accept the amendment. The chaplains, he said, were the consolers of our seamen afloat, who, separated by distance from their native country, have need of their comforting words. The duty of the chaplain, besides, is not solely on board ship, but also in the naval hospitals and prisons; and the Chamber, he was sure, would not take from our seamen this consolation. The amendment was negatived by 344 to 163 votes.

It is stated that on account of the considerable expense incurred in reinforcing the French squadron in China, and by the prolonged stay of extra vessels in Crete, that there will be no Grand Manœuvres for the Mediterranean Fleet this year.

The French Navy Estimates have passed the Chamber, and the vessels to be laid down in the present year are as was foreshadowed in the Naval Notes in the December number of the JOURNAL, viz:—One battle-ship of the "Jéna" type (12,000 tons), three armoured cruisers, and 11 torpedo-boats. At the end of the year the ships in hand, in addition to battle-ships, will be the "Jeanne d'Arc," armoured cruiser, of 11,270 tons; the "Gueydon," "Montcalm," "Dupetit-Thouars," and three other armoured cruisers of 9,500 tons; the "Kléber," "Desaix," and "Dupleix," armoured cruisers of 7,500 tons; ten protected cruisers, ten destroyers, five sea-going torpedo-boats, and 32 for coast defence. In order to provide for the building of the armoured cruisers, eight protected cruisers of 4,000 tons, and three of 2,500 tons have been abandoned. The "Kléber," "Desaix," and "Dupleix" have been included in last year's Estimates, although the ships can hardly be said to have been commenced.

In the description of the "Charles Martel" given in the January number of the JOURNAL, it was stated that her four heavy guns were carried in barbettes; it should have been in turrets, one forward and one aft, and one sponsoned out on each beam; while the circular casemates for the 5·5-inch Q.F. guns are practically small turrets, protected by 3·9-inch, and not 3-inch armour. It should also be mentioned that above the heavy water-line belt is a 4-foot deep belt of 3·9-inch armour, called the cofferdam belt, which is intended to protect the armour deck against the direct action of shell fire.—*Le Temps, Le Yacht,* and *Le Journal Officiel.*

RUSSIA.—On the 2nd November, the newly finished ironclad "Petropavlovsk," in spite of a somewhat strong breeze from W.N.W., proceeded to sea for the official trial of her engines, which were to last twelve hours at a stretch, at full pressure. Four trips were first made on the measured mile, the first giving a speed of 16·55 knots, the second of 17·06 knots, the third of 16·6 knots, and the fourth of 17·14, the mean speed being 16·84 knots. The vessel then proceeded to the southern extremity of Hohland Island, and the wind having fallen, the distance of 133 miles was made in 7 hours 37 minutes, or a mean speed of 17·5 knots. The engines, built by Hawthorn, Leslie and Co., of Newcastle-on-Tyne, gave brilliant results, giving 84 to 85 revolutions per minute. The trial lasted from 11.45 a.m. to 11.45 p.m. The following results were obtained as to the I.H.P. developed by her engines on her previous trial, the average being taken from 12 diagrams :—

| | |
|---|---|
| Port engine at full pressure ... ... ... | 1564·57 |
| Medium ... ... .. ... .. ... | 1900·36 |
| Low ... ... ... ... ... ... ... | 1963·65 |
| Total ... ... .. | 5428·58 |
| Starboard engine at full pressure ... ... | 1484·82 |
| At medium do. ... ... ... | 1849·48 |
| At low do. ... ... ... | 1636·54 |
| Total ... ... ... | 4970·84 |

Giving a grand total for both engines, with 84 revolutions and 120 lbs. pressure of steam, 10,399·42-I.H.P.

The cruiser "Opritchnik," which was transferred to the category of training-ships, will for the ensuing year be employed as a diving depôt, instead of block-ship No. 2. Her guns, with the exception of two are to be taken out of her, and she is to be dismantled, except for the lower masts and yards. The newly-built ironclads, "Petropavlovsk" and "Poltava" will not be heated with steam as proposed, but they will be lighted by electricity.

The ships of the evolutionary squadron and of the gunnery-training squadron were paid off on the 22nd September, and Vice-Admiral Tyrtov hauled down his flag on board the "Dnieper."

The first-class armoured cruiser "Hertzog Edinburgskie" lately made some speed trials after extensive repairs. She made two trips at full power of her engines, with 56 revolutions and 60 lbs. pressure of steam on the boilers, the steam coming very easily. During the first trip the average speed attained was 12·06 knots, in the second 11·79 knots, or a mean speed of 11·91 knots. The wind was S. 3 and S.E. 3. Diameter of screw, 20½ feet; pitch of screw, 23 feet. One diagram taken showed an I.H.P. of 2,610.

The new armoured gun-boat "Khrabry" has completed her trials on the measured mile. There was little wind and the sea was calm; six trips were made at full speed, giving a mean speed of 14·54 knots. The engines worked smoothly throughout, giving from 143 to 150 revolutions a minute, with a pressure of steam on the engines of from 105 to 150 lbs. The steam in the boilers was easily maintained at from 140 to 200 lbs. the square inch. Between Kronstadt and St. Petersburg experiments were made in shifting the tubes, which was done with three in three-quarters of an hour, thus showing the immense superiority of the Niclausse boilers. The trials of these boilers, gave excellent results. The expenditure of fuel to I.H.P. was 750 grammes for the principal engines, the subsidiary not being required, or 200 grammes less than with other types. The I.H.P. developed by her engines was as follows :—

| | |
|---|---|
| High pressure ... ... ... ... ... ... ... | 1160·38 |
| Low ,, bow ... ... ... ... ... ... | 756·12 |
| ,, ,, stern ... ... ... ... ... ... | 725·45 |
| | 2641·95 |

This was at 56 revolutions and 60 lbs. pressure of steam in the boilers.

Two tugs are to be placed off the Nekmangrund and Vulchur shoals, keeping a look-out alternately, which are shortly to be replaced by a light-ship, which is to be ready by the 15th May next. She is to have a speed of 8 knots, a draught (with 60 tons of coal) of 8½ feet, and two dynamos for electric lighting, giving 50 ampères and 70 to 75 volts, at 400 to 450 revolutions.

Torpedo-boat No. 137, built at the Neva Works, has failed in her trial with forced draught, as she had to return owing to damage to feed-pump. Torpedo-boat No. 102 ("Vyborg") is to remain at sea for the instruction of her crew in the management of naphtha fuel; the crew will be changed as they get to understand this work. The new torpedo-boat No. 138, built at the Neva Works for naphtha fuel, has also been tried at forced draught; as there were difficulties in the way of making 21 knots, she was tried at 19, the mean speed in three trips being 19·79 knots with 300 revolutions and 180 lbs. pressure of steam; the engines worked well throughout, at 0·9 of possible forced draught. The fitting of the "Admiral Greig" for naphtha fuel is to be postponed, on account of the difficulty of placing the tanks. Another new torpedo-boat No. 140, just completed from the Neva Works, lately made four trips on the measured mile, but, owing to damage to the ventilator, the trial was not successful. There have been several such accidents on torpedo-boats recently constructed. Those that are fitted for naphtha fuel have only one ventilator, and have to make from 1,000 to 1,200 revolutions in a minute, which cannot fail to be dangerous. During a second trial trip, in which 22 knots were made, she sustained damage to her starboard engine, and had to return for repairs. Her boilers are fitted for use with "Mazut" (patent fuel.)

On the 26th October trials were held of the new guns and engines of the first-class cruiser "Vladimir Monomakh," the former by a committee presided over by Rear-Admiral Messer, three shots being fired from each gun. On the measured mile the cruiser gave a mean speed of 15·3 knots with 80 to 84 revolutions of both engines. The pressure of steam was from 65 to 70 lbs. per square inch.

The best of the torpedo-boats of the "Ternov" type ordered at the Neva Works has proved to be No. 136, which was tried with forced draught on the 27th October. In three trips with 345 revolutions she gave a mean speed of 23·18 knots: 1st trip, 23·08; 2nd trip, 22·86; 3rd trip, 23·60. Pressure of steam, 150 to 175 lbs. per square inch. The engines worked smoothly, and there was no overheating. For the future it has been laid down that all machinery, etc., required for ships shall as far as possible be ordered at home works.

At a meeting of the Engineers' Society, under the presidency of Vice-Admiral Tyrtov, an account was given of the diving operations in connection with the "Gangut." It dwelt on the difficulty of operating at a depth of 16 fathoms, and how this difficulty had been overcome, the position of the vessel, the possibility of repairing the damage, and the attempts of divers to get inside the vessel. She is lying on her port side, half buried in the argillaceous bed. There are three small fissures in her bottom, about 3 feet square in all, in consequence of her having struck softly on a sharp rock. There is talk, as before said, of filling her with air, and so raising her as was tried with the "Moguchi," but it is feared the depth is too great. A Swedish syndicate proposes to raise her by means of specially constructed pontoons.

The wreck of the "Gangut" has naturally drawn increased attention to the question of water-tight compartments and their more careful testing on being taken over from the yards. The method of testing is by flooding the compartment up to the main deck, and this was tried on board the "Admiral Ushakov." The largest of the compartments, viz., the after stokehold, was selected, capable of containing 396 tons, and after the water had reached the water-line it was raised to the level of the main deck by pumps. The compartments stood the test on the whole admirably, but the pumping apparatus only got rid of the water at an average of 97 tons in an hour, instead of 250, as should be the case. The

present system of turbines is held responsible for the failure. A paper was recently read at this Society on this question of water-tight compartments and the efficacy of the pumping gear on board the coast-defence ship "Admiral Ushakov." Everything goes to show that the "principal tube" system is undesirable, and that the plan suggested by the Mechanical Committee, viz., having special turbine pumps in each compartment, is greatly to be preferred. An account was also given of the experiments on board the "Imperator Nicolai I.," which in the main had similar results; some details being given by Engineer Gorinnov of the trials of the ejecting machinery on board this battle-ship. The ship has three turbines, the ejecting capacity of which is estimated at 750 tons an hour, a fourth giving 250 tons, two circulation pumps giving 1,200 tons each, two Friedmann ejectors for 270 tons each, and two pumps in the hold for 125 tons each. The trial was only partial, in consequence of the ship being under orders for abroad, and the results were:—

| | | | |
|---|---|---|---|
| Turbine No. 1 ... ... ... ... | 215 | tons | per hour. |
| ,, No. 2 ... ... ... ... | 623 | ,, | ,, |
| ,, No. 3 ... ... ... ... | 631 | ,, | ,, |
| ,, No. 4 ... ... ... ... | 159 | ,, | ,, |

Three turbines and the two circulation pumps, working through the same receiving valve of the principal tube, displaced 1,647 tons in an hour.

Another interesting paper was recently read before the same Society on "The grounds for replacing English coal by Russian for the heating of boilers on board men-of-war." The lecturer pointed out that the quality of Russian coal was so bad that its use would diminish the speed of ships and their sphere of activity, apart from which they might be placed in a very awkward position in time of war. The President suggested that the experiment should be once more tried.

An interesting paper was also read on February 16th by Vice-Admiral Makarov on "The Necessity of Uniformity in Type of Ships." After describing the various types adopted in the English, German, and French Navies, the lecturer recapitulated the methods by which uniformity could be obtained, uniformity of design, uniformity of steering, of engines, of armament, and displacement. It could not be denied that uniformity, both in the general type of ships and in detail, was indispensable to success in war.

The torpedo-cruiser "Captain Sacken," of the Black Sea Squadron, has been supplied by the firm of Hawthorn, Leslie and Co., of Newcastle-on-Tyne, with three new boilers on Eaves and Ellis's system with outward ventilating draught. They are calculated for 4,500-I.H.P. The ventilators for this outward draught are fitted in the heads of the funnels, one to each boiler, the diameter of the fly being 8 feet, and through this pass all the products of heating. The air for heating passes half-heated through special tube-shaped heaters. Liquid fuel is to be used, and it is hoped that the results attained may be far more satisfactory than those with inward draught.

A consignment of 30,000 poods of Smolianni coal is expected before long at Kronstadt. It is to be used for heating the Imperial Yacht "Standard," but will first be tried experimentally in a boiler at the steam works, to see if it is really equal to Cardiff coal, as hoped.

New fan screws, on the model of those of the cruiser "General-Admiral Apraxin," have been ordered for the cruisers "Minin" and "Hertzog Edinburgskie."

At the present moment at the Baltic Works the construction of the ironclad "Peresviet," which is to be launched in April, is being pushed on, the Belleville boilers being already fitted and certain other parts of her machinery. As soon as these are finished, the engines for the first-class cruiser "Gromoboi" will be proceeded with. That vessel, according to the official programme, will be laid down as soon as the "Peresviet" is launched. In addition the Works are engaged

in preparing the three principal engines for the battle-ship "Osliabia," and all the smaller machinery for the three ships mentioned. Plans are also being worked out for a torpedo transport of 2,000 tons, with engines of 2,500-H.P., and engines of 15,000-H.P. for the battle-ship for the Black Sea Fleet, "Kniaz Potemkin Tavricheski." The Yard has also in hand three steam-launches, of iron sheathed with zinc, for the cruiser "Vladimir Monomakh." As it is necessary to hurry on the work of fixing the armour on the two new battle-ships "Petropavlovsk" and "Poltava," it is proposed to utilise electric power for puncturing the necessary holes, as was done in the case of the "Sissoi Velikie." For the future all ships that are built, including the ironclad "Petropavlovsk," will be fitted with steam-heating apparatus in their engine-rooms and stokeholds, and the corridors of their screw chambers.

Orders have just been received from the Admiralty, at the Baltic Works, for the construction of twenty Belleville boilers, with economisers, to be fitted on board the first-class cruiser "Admiral Nakhimoff," as those for the "Peresviet" and "Osliabia" are almost finished. They are to have thirty each, complete. The Works furnish them in every way equal to those supplied by the firm of Delaunay-Belleville, Paris. The novelty of the present order is the economisers, which resemble a second boiler, only with thinner tubes, placed beneath the original. The object is to more completely utilise the heat from the fuel, and certain new machinery is needed to produce these economisers. Boilers of the Yarrow and Normand systems, with the latest improvements, are also produced at the Works.

During the current year new steam boilers are to be supplied to certain ships at a cost of 700,000 rupees. These ships are the coast-defence ironclad "Admiral Lazarev," the cruisers "Asia" and "Rynda," and five torpedo-boats, while in eight others the Yarrow boilers will be replaced by Du Temple.

The proposed new engines for the gun-boat "Mina" and the steamer "Peterburg" have been countermanded.

In reviewing the work of the past year, it is mentioned that there has been launched the gun-boat "Giliak," for service in Eastern rivers. At St. Petersburg there are in process of construction the battle-ships "Osliabia" and "Peresviet," both of 12,840 tons, and the first-class cruisers "Gromoboi," "Diana," and "Pallada"; the first of 10,000, the two others of 6,600 tons each. At Nicolaief the battle-ship "Kniaz Potemkin Tavricheski," of the same type as the "Tri Sviatitelia," is in course of construction. The first-class cruiser "Rossia" was very rapidly completed for sea, so that she might be present at the Naval Review at Spithead. The antiquated guns of the "Vladimir Monomakh" were replaced by 6-inch and 120-millimetre Canet guns, and the electric ammunition hoists for more rapid supply of cartridges fitted.

A proposal has recently been made by the Thames Shipbuilding Company to establish at one of the Baltic ports a great shipbuilding establishment. The conditions proposed are as follows:—1. The company is to use Russian materials and employ native workmen, and to receive no pecuniary support from the Government. 2. The *employés* shall be natives, with the exception of the managers, experts, instructors, and foremen, who shall be English. 3. No ship, however great its size, shall be more than eighteen months in building. 4. Any port may be selected in the Baltic or Gulf of Finland, except at St. Petersburg. A writer in the *St. Petersburg Gazette* declares this is the only method of securing a home-built marine, mercantile or for war.

It is proposed for hydrographic purposes to acquire a new steamer in England, and specialists will be sent there shortly for the purpose. It is to be used more especially for surveying the shores of the Northern Seas, and so will need a slight draught, and a large coal supply. A detachment of seamen has been sent from Fort Miliutin to the Tolbukh lighthouse to carefully survey the surroundings of the spot where the "Navarin" ran on a rock in September, 1895. Divers wil also be employed, and any rocks found will either be removed or blown up.

The heavy storms and high tides have made surveying very difficult this winter. It is proposed to enlarge the harbour at Marinpol by constructing new moles, and extending the breakwaters to a distance of 450 fathoms. The depth of the new basin, as also of the existing one, is to be increased to 18 feet, which will add considerably to its capacity.

A chart has recently been issued of "the western part of the Gulf of Peter the Great," founded on surveys carried out in the Eastern Ocean from 1883 to 1895. The names used differ from those already to be found on existing maps only where new features are given. We have also meteorological statistics from Vladivostok, completed up to 1895, including the times of thawing and freezing in the Golden Horn and the Amur Gulf. The chart includes the coasts from the mouth of the Tiomen Ula to Vladivostok, including the group of islands lying to the south of the Muraviev Peninsula and the Amur Gulf.

Vice-Admiral Makarov, who has lately returned from a journey to the North, has brought back a rich supply of information, a part of which is given below. The sea route to the Obi and Yenisei has an enormous importance for Siberia, especially as a means of exporting her products. In several districts wheat grows profusely, but for want of an outlet the prices are very low, so much that it is often left unharvested. Cheese also can best be exported by sea. A sea route to these two rivers can easily be opened up. The entrance to the Yenisei is so deep that ships of any burden can enter it. The Obi is practicable for ships not above 12 feet draught. The chief difficulty, of course, lies in the ice of the Kara Sea. The Admiral has ascertained by discussion with numerous undoubted authorities that this ice is only of a year's growth, and so far less thick than in the centre of the frozen ocean. Its presence there depends largely on the wind. If there is a succession of north-east winds the sea remains ice-bound all the summer, but south-west winds drive the ice out of it. In August the sea may usually be traversed by any ship, though not always, there being years when the ice lasts all through the summer. Thus the route can only be depended on by ships accompanied by ice-piercers. These should have engines of at least 15,000-H.P. The hydrographic observations made by the Admiral all the way from Vardoe to Yenisei explain many things. For instance, the Yugor Gulf is often full of ice, because the surface water for the most part comes from the Kara Sea. According to all the laws of circulation of sea-water, the current should here run east, but as a matter of fact it runs west in consequence of the difference in the specific gravity of the water. Hence, in the Yugor Gulf there is a double current, as in the Bosphorus.

We learn that Vice-Admiral Makarov will shortly proceed to England to superintend the construction of an ice-breaking vessel of a new type. He will afterwards proceed to America to examine the types there used to break the ice on the great lakes.—*Kronstädtski Viestnik.*

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UNITED STATES.—The cause of the terrible explosion by which the U.S. armoured-cruiser "Maine" was destroyed in Havana harbour on the evening of the 15th ult., with a loss of two officers and 253 men, has not yet been satisfactorily explained, and it seems quite possible that the mystery will never be solved. The awful catastrophe has naturally called forth expressions of sympathy from the whole civilised world with the Government and people of the United States. The "Maine" was a partially belted cruiser, launched in 1890, with the following dimensions:—Length, 318 feet; beam, 57 feet; draught, 22 feet 6 inches, with a displacement of 6,682 tons. Her engines developed 9,290-I.H.P., giving a speed of 17 knots. The belt, which extended amidships, for about 150 feet of her length was 12 inches thick, with a 6-inch athwartship bulkhead forward and a 4-inch one aft. The armament consisted of four 10-inch guns in two armoured turrets, placed *en échelon;* six 6-inch guns, with eight 6-pounder and eight 1-pounder Q.F. guns; and four machine guns. The turrets for the 10-inch guns

were protected by 12-inch armour in front tapering to 10 inches. There was also an armoured deck 2 inches thick.

*Précis of the Report of the Secretary of the Navy for 1897* :—The Chief of the Bureau of Navigation recommends an increase in the line of 100 lieutenants, 50 lieutenants junior grade, and 15 captains. The Secretary recommends only one-half of the increase for the first two grades, but he approves the recommendation of the Paymaster-General for an increase of 20 in the Pay Corps, and suggests that the age limit be raised to 30 years. The Engineer-in-Chief wants 300 more officers; the Secretary recommends an increase of 75 only. The Secretary does not entirely concur in the recommendation that the two years' cruise for naval cadets be abolished, but thinks that the test of one year is sufficient, confining the subsequent examination to ascertaining the progress made at sea in the work of an officer on board ship. By making the district represented by a cadet vacant when he leaves the academy the increase in the number of cadets asked for by the superintendent will be obtained. Legislation is therefore asked that the age for admission to the Naval Academy shall be between 15 and 18 years; that at the end of the four years' course the cadet shall pass his examinations as at present, at which time his place shall become vacant; and that he then be sent to sea for one year, returning at the end of it to the academy for final examination in the practical duties of his profession. This will secure an immediate increase of 37 officers (the cadets who have been at sea for one year) and will also allow the commissioning in June next of the 49 cadets who will then complete their year's cruise. It is desirable that any addition to the number of officers should be made gradually in order that no so-called "hump" may be developed, and it is believed that the foregoing recommendations will effect that end. The graduating classes would then average about 50 per cent. larger than now, as changes will occur once in four instead of once in six years. The President should also be given authority to appoint ten additional cadets each year.

It is recommended that authority be given to restore to the foot of the classes in which they belonged with rank not higher than junior lieutenant and after a rigid examination naval cadets discharged under the act of August 5th, 1882. This would at once do an equity and correct a hardship, and at the same time meet what has become a need of the Service.

The Secretary should be given authority to make additional enlistments and in case of need to such an extent as the emergency requires. To enable to avail ourselves of our resources in the merchant limit the right to enlist apprentices should be unlimited and additional training-vessels be equipped from time to time as needed.

STRENGTH OF OUR NAVY.

The present effective fighting force of the Navy consists of 4 battle-ships of the first class, 2 battle-ships of the second class, 2 armoured cruisers, 16 cruisers, 15 gun-boats, 6 double-turreted monitors, 1 ram, 1 dynamite gun-boat, 1 dispatch boat, 1 transport steamer, and 5 torpedo-boats. There are under construction 5 battle-ships of the first class, 16 torpedo-boats, and 1 submarine boat. There are 64 other naval vessels, including those used as training, receiving, and naval reserve ships, tugs, disused single-turreted monitors, and some unserviceable craft. There is, further, the auxiliary fleet. This consists, first, of more than 20 subsidised steamers which comply with the requirements of the Postal Act of March 3rd, 1891, with regard to their adaptability to naval service, and to an armament of main and secondary batteries; second, of a very much greater number of large merchant marine steamers, which can be availed of at any time of need. The auxiliaries, ranging from 2,000 to 12,000 tons, will, if occasion require, form a powerful fleet of ocean cruisers, capable of swift and formidable attack upon an enemy's commerce. Their great coal capacity will also enable them to remain a long time at sea in search of the whereabouts of hostile vessels.

The country is to be congratulated upon the results obtained in the rebuilding of the Navy. While its ships are not as many—and it is not necessary they should be—as those of some other great Powers, they are, class for class, in power, speed, workmanship and offensive and defensive qualities, the equal of vessels built anywhere else in the world.

The vessels under construction should be completed during the coming year, except the five battle-ships, which will probably not be ready for service before the latter part of 1899. Provision should at once be made for obtaining the armour necessary to their completion. In compliance with the direction of Congress, plans and estimates for the establishment of an armour plant will be transmitted to Congress in a special report.

Work on the torpedo-boats has not proceeded as rapidly, on the whole, as the terms of the contracts require, but no reason appears for doubting that the contracts will be fulfilled in every respect except that of time.

An important addition of light-draught and composite gun-boats to the effective force of the Navy has been made since the last annual report. The first cost of all these gun-boats was low, aggregating about £2,000,000 for the nine, or not more than the cost of a single first-class armoured cruiser. The cost of their maintenance also, particularly in the case of the composite vessels, should not be excessive, and the reports of their trials, as well as the opinion of officers in command of them, have been distinctly favourable. The composite gun-boats are the first which have been designed and completed under the provisions of the general order placing the responsibility for design, structural strength, and stability, including the resultant effect of all changes made after the approval of designs, upon the Bureau of Construction and Repair.

The report of the Chief Constructor shows that, as for several years past, the appropriation has not been enough, and the Chief Constructor, in his estimates for the ensuing year, is justified in asking for a larger appropriation under this head, especially as the constant additions to the number of vessels in the service necessarily involves increased expenditures for care and maintenance.

The fleet of torpedo-boats available for active service is rapidly increasing. Some provision must be made for their stowage and preservation, as they are subject to rapid deterioration. Only a limited number, sufficient to provide proper training for officers and men, should be kept in the water in active service. The remainder should be kept in good condition, out of the water and under cover, ready for instant service.

The Department has during the past year adopted the practice of placing in reserve such vessels as it deems advisable for any reason not to retain in active commission. Their stores are kept in storehouses convenient, the machinery taken care of, and arrangements made to put them in service in a few days.

The North Atlantic Squadron, under command of Rear-Admiral Bunce until May 1st, 1897, and since then under Rear-Admiral Sicard, has had during the past year the benefits which result from exercises in drill and fleet manœuvres. Embracing three battle-ships of the first class, two of the second, and some of our best cruisers, it makes the most formidable fleet assembled since the civil war. The Department has been able during the past year, for the first time, to exercise battle-ships as a squadron. This fleet visited Charleston during February, and was exercised in a blockade of that port. The value of exercises of this kind to the fleet cannot be over-estimated, and it is the intention of the Department to utilise the North Atlantic Squadron as far as possible in drills and manœuvres, from the results of which *data* can be obtained as to the most effective method of using the fleet in time of war.

The 8-inch turrets of the "Brooklyn," which are operated by electricity, have been tested with marked success, and I have deemed it proper, therefore, to substitute electricity for hydraulic power on board the battle-ships "Illinois" and "Alabama." The change in the vessels, however, applies only to the revolving of the turrets, raising and depressing the guns, and the hoisting of ammunition.

In view of the affection with which the people regard the "Constitution," the Department believes that it should be preserved and handed down to future generations. It is therefore suggested that a sufficient appropriation be made to fit it for use as a training-ship.

Progress has been made under the Bureau of Ordnance in arming our vessels in keeping with their increase in number. It appears from its report that all the guns, 547 in number, required for the main batteries of the modern ships of the Navy have been completed, except those for the five battle-ships now under construction, and for the "Hartford." These guns, however, will be completed far in advance of the battle-ships. During the past year 88 guns of various calibres, from 4 to 13 inches for the main batteries of vessels, have been completed at the naval gun factory, and 169 are now in process of manufacture. For secondary batteries for naval vessels the Department has ordered 963 guns. One hundred 3-inch field guns have been manufactured. The manufacture of one hundred heavy 1-pounder automatic Q.F. guns has been undertaken. A number of 6-inch guns of ordinary type are under conversion into rapid-firing guns. Contracts have been made during the past year for a quantity of common and armour-piercing shells for 1-pounder and 6-pounder guns, and for guns of from 4 to 13-inch calibre. Ten thousand 6-millimetre Lee straight-pull rifles have been supplied and nearly all the vessels in commission, except those on foreign stations, have been equipped with them. Fifty automatic guns, firing small-arm ammunition, have been procured and are in process of issue to the Service. Fifty more are in process of manufacture. When the present contracts for torpedoes are completed the Department will have on hand 309 Whitehead and 51 Howell torpedoes.

Progress has also been made in obtaining a reserve supply of guns and projectiles for naval vessels and for auxiliary cruisers. At the present time 142 guns for this purpose are in process of manufacture, 12 of which are of large calibre, and 130 suitable for arming auxiliary cruisers. This number will be sufficient to arm only 21 vessels with six guns each. It is deemed desirable by the Department that this work should be steadily prosecuted, as in no other way or with so little expense can we add to our naval strength as by providing guns and ammunition for auxiliary cruisers. The board for the inspection of merchant-vessels has scheduled 60 vessels, and recommends batteries as follows:—Forty-six 6-inch, two hundred and five 5-inch and two hundred and six 4-inch guns. There are now in process of manufacture forty-one 6-inch, forty 5-inch, and forty-nine 4-inch guns, leaving to be provided five 6-inch, one hundred and sixty-five 5-inch, and one hundred and fifty-seven 4-inch guns. Of the 963 guns required for the secondary batteries of the ships of the Navy, 865 have been completed. Two hundred are now in process of manufacture, which, when completed, will leave a surplus of 166 guns available for arming auxiliary vessels.

The Department has recently acquired the right for using a soft steel cap on armour-piercing projectiles, which renders them much more effective, and which is to be fitted to all new shell.

Contracts for shell have been made during the past year as follows:—Secondary battery—Common 1-pounder, armour-piercing 6-pounder, main battery—Common 5-inch, ten thousand; 12-inch, one hundred and fifty; armour piercing 4-inch, six thousand and forty-eight; 5-inch, five thousand two hundred and twenty-one; 6-inch, six thousand two hundred and eighteen; 8-inch, two hundred and twenty-three; 10-inch, sixteen; 12-inch, sixty-five; 13-inch, six hundred and twenty.

The question of having always at hand a satisfactory source of supply for powder has received much consideration from the Bureau, and it suggests that in view of the lack of sufficient competition among private manufacturers the Government should establish and operate a factory of its own of moderate capacity. Estimates have been submitted for this purpose and also to provide for the purchase of a reserve supply of powder, which, though the expense is large, is absolutely essential if the Navy is to be maintained in an efficient fighting condition. The

cost of materials for a complete supply of ammunition to once refill all the vessels of the Navy, including the five unfinished battle-ships, would be $6,521,985; not including them, $1,836,482 less. The cost of ammunition for one battle-ship of the "Kearsarge" class is $383,197.

The Department has been embarrassed for several years for want of suitable magazines. It is important that authorisation be given to purchase a suitable tract of land contiguous to the waters of New York, where a magazine can be erected for our principal naval station, which is there.

INCREASE AND COST OF THE NAVY.

Hitherto for more than a decade the increase of the Navy has very properly been in the line of new ships, and wisely so, as this has hitherto been the vital need. In the opinion of the Department, the time has now come when that increase should be on adjunctory lines in order to bring our naval facilities up to the same line of advance. As heretofore indicated, the principal need to-day is that of sufficient docks, of which there is a deplorable lack; of adequate supplies of the munitions of war, which should never be at the hand-to-mouth stage; of an equipment of our Navy yards equal to the demand upon them of the increased number of our ships; and of an enlarged corps of officers and men to do the work.

It is a mistake not to recognise that our naval power has more than doubled within the last few years; that the case of any emergency beyond our present resources is the very rare case; that until it comes ships will be gradually taken out of commission and put into reserve in order to reduce running expenses; and that a due regard is necessary to the relation of the national expenditure to the national revenues.

The Department therefore recommends that the authorisation of new ships by the coming Congress be limited to one battle-ship for the Pacific coast, where, after the five now under construction are completed, there will be only two, while on the Atlantic there will be seven; and also to a few torpedo-boats and torpedo-boat destroyers, both of which are comparatively of little cost, and more of which are desirable in order to bring this swift, mobile, and handily effective arm of the Service up to its place in the general scheme for coast defence.

According to the reports of the Paymaster-General, the total cost of maintaining the Navy during the fiscal year ending June 30th, 1896, exclusive of its increase, and of permanent improvements at yards and stations specially appropriated for, was $15,494,862·03, and for the fiscal year ending June 30th, 1897, $17,514,231·13. It appears, therefore, that the expense of maintaining the Navy is a growing one, as distinguished from its increase and permanent improvements, the cost of which varies from year to year according to the judgment of Congress as to the desirability of these latter items. Attention is called to this fact because the country should be under no misapprehension as to the increasing cost of maintenance.

The building of a ship is a definite fixed expense, incurred once for all. But to maintain it, to provide it with docks, naval stations, and other necessary facilities, to man and equip it, to keep it in repair—in short, to run the naval establishment—is, and must continue to be, a large charge on the public treasury, and, for a time certainly, an increasing one. Economy is necessary at large and in detail, not merely as a good theory to proclaim, but as an actual practice to perform.

With the best exercise of this virtue, expenses will be large in this, as in every other department of a Government which represents the interests of a country so vast as ours. But it is believed that the people whose arm the Navy is, and who evidently appreciate its potential usefulness, desire to maintain it at the point of highest efficiency, and will do so the more cordially the more frankly they are informed of its real and deserving needs and demands and of the justifiable cost they necessitate.

# MILITARY NOTES.

## PRINCIPAL PROMOTIONS AND APPOINTMENTS DURING FEBRUARY.

General Lord Chelmsford, G.C.B., to be Colonel of the Sherwood Foresters (Derbyshire Regiment). Lieut.-General C. A. Goodfellow, V.C., Royal Engineers (late Bombay), to be Colonel Commandant, R.E. Surgeon-General G. Bidie, C.I.E., Madras Retired List, to be Hon. Surgeon to the Queen. Lieut.-General V. H. Clive to be General; Major-General J. C. P. Glyn, Lieut.-General; and Colonel (temp. Major-General) R. F. Butler, commanding the troops in Barbados, to be Major-General. Colonel H. S. G. Miles, M.V.O., A.A.G., Aldershot District, to be Commandant of the Staff College. Colonel J. H. Wodehouse, R.A., C.B., C.M.G., to command the Residency District of Bengal, with the rank of Brigadier-General. Colonel A. W. Sheringham, half pay, to command the 22nd Regimental District.

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HOME.—The "Reserve Force Act" of 1867[1] was prepared after it had been referred by General Peel, the then Secretary of State, to a committee presided over by H.R.H. the Duke of Cambridge.[2] The committee was instructed to advise on the formation of an Army Reserve on certain lines. But it seemed unable to grasp the full importance of some system whereby the Army could be readily and speedily increased through means of a Reserve; though it recommended[3] the formation of a Reserve by granting unlimited furloughs to soldiers coming home from abroad with such regiments as had an excess over the numbers on the home establishment. It also pointed out, after reviewing the numbers that would be required to complete the regiments at home and abroad to a war footing, that "a Reserve should be sufficient to fill up to a general service footing, at least all the corps serving at home." These two recommendations really foreshadowed the method and system subsequently adopted. At the time here spoken of, 1867, it was the invariable rule to fix the number up to which a Reserve might be maintained (which, as we have seen, was 20,000 for the 1st Class Army Reserve), apparently on the principle, not only of controlling expenditure, but also of respecting the well-known Parliamentary prejudice against a Standing Army. Adherence to this latter principle was, perhaps, overstrained; for already, in 1852, in the debate on the Militia Bill, Mr. Sidney Herbert had declared there was no prejudice against a Standing Army—"that time had gone by."[4]

In 1867 a new "Army Enlistment Act" was passed, framed after the advice had been taken of the Royal Commission on Recruiting of 1866, the second[5] which had been assembled in five years, in consequence of the failure in recruiting under the old system. The first point to which the attention of this Commission was directed was the deficiency of recruits. The remainder included suggestions for the localisation of regiments, the retention of old soldiers in the ranks, the adoption of general service enlistment, and the formation of a Reserve. The

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[1] Continued from p. 212 *Journal R.U.S.I.*, February, 1898.

[2] Army Reserve Committee, January, 1867.

[3] The Army Book for the British Empire, p. 50.

[4] Hansard's Parliamentary Debates, Vol. CXX., p. 1165.

[5] The first was the Royal Commission of 1861, which showed that the additional 65,000 men sanctioned for the Army in 1857 had not yet been raised, in spite of the reduction of the standard, etc.

Commission declared the then existing Reserve Act of 1859 a failure, but had no plan to recommend in lieu of it. It was not in favour of localisation, but suggested the improvement of local connection for the recruiting of regiments; it declared that a return to long service was impossible, and that the alarm of losing men by the operation of short service was not justified. There were several other recommendations, but they all tended to show how very unsettled were the opinions of the time. Though appointed prior to the war of 1866, this Royal Commission sat until after its close, and the lessons of the war were put on record in its report in emphatic language of admonition.[1] The success of the Prussian Army in this short seven weeks' war, following on that of the Schleswig-Holstein war of 1864, startled Europe, and drew serious attention to the success of a short-service Army and young soldiers. "Recent events," said the Royal Commission, "have shown that we cannot rely on having much time for mobilisation for war, and woe to that country which is unprepared to defend itself against any contingency that may arise or combination that may be formed against it. . . We must look more to our Army. We think its present strength is barely sufficient for a period of peace, and the question is how we can most readily and speedily increase it, through the means of a Reserve force consisting of men who have already received their training in its ranks."

It has been already shown[2] that under the "Reserve Force Act" of 1867, the home Reserves of 1843 and 1859 were together classed as the "2nd Class Reserve," and a "1st Class Reserve" was established, which was to consist of 20,000 men who had not completed their first term of service in the Army, and who were available in war-time to serve abroad as well as at home. The results of these measures, as we have stated, were very poor.

From 1868 to 1874 Mr. Cardwell held the office of Secretary of State for War, and applied what is known as the "modern system" to the British Army. The Franco-German war had convinced England that if it became necessary to send a force abroad, she had no means whatever of expanding her Army to war strength, except by pouring raw recruits into the ranks. The nation awoke to the necessity of so organising its Army that regiments could be raised from a peace to a war establishment at the shortest notice, and realised that this could only be accomplished by means of an Army Reserve. On the 3rd March, 1870, in the House of Commons, Mr. Cardwell disclosed his Enlistment Act, which introduced the short-service system, and provided an efficient Reserve. By the provisions of this Act, which was in effect the basis of the present law of 1881, a recruit was not to engage for more than twelve years; he could be enlisted for three years with the colours and nine in the Reserve, or for seven with the colours and five in the Reserve. The mass of men, *i.e.*, those for the cavalry and infantry of the Line and the Royal Artillery, enter for seven years with the colours and five in the Reserve, and eight years with the colours and four in the Reserve, if the period of Army service expires while the man is abroad. The Foot Guards and Royal Engineers have the option of the above, or of three years' colour service and nine years' Reserve service, and an additional year of Army service if abroad. All recruits for the Army Service Corps enter for three years' Army and nine Reserve service.

There is a supplemental Reserve which is formed of men engaged to continue their Reserve service for four years after that contracted for, as above, has expired; this is Section D of the 1st Class Reserve, and by the Reserve Forces Act of 1882, it is not liable to be called out until after the rest of the 1st Class Reserve. The 2nd Class Reserves of 1859 and 1867, etc., have practically ceased to exist.

The Army Reserve of all arms numbered on the 1st January, 1898, 82,005 (including 7,173 supplemental Reservists).

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[1] Report of Royal Commission on Recruiting, 31st October, 1866.

[2] *Journal R.U.S.I.*, February, 1898, p. 211.

The efficiency of our home battalions, mobilised for war, largely depends on the quality of the Reserves, and there is no doubt that in the public mind a certain distrust of the Reserve prevails. By general order of 3rd April, 1878, the War Office ordered the mobilisation of the 1st Class Army Reserve and the Militia Reserves, in consequence of the apprehension of war with Russia. All the Army Reserve then existing were summoned to the colours, and 13,684 responded out of a possible 14,154. The number of Militia Reservemen summoned was about 20,000. There were no absentees. Their general conduct was excellent, while their steadiness and intelligence at drill, their cleanliness and soldierlike bearing, and their fine physique, was commented on by the various general officers under whom they served. The Army and Militia Reserves were demobilised by general order of 20th July, 1878. Again in 1882, in consequence of the war in Egypt, 11,642 men of the Army Reserve were summoned to the colours, and 11,032 reported themselves. H.R.H. the Duke of Cambridge said the men "behaved most admirably, and we were surprised how little they had forgotten." Sir Evelyn Wood said, "In no foreign Army have I seen such a splendid body of men." The Militia Reserve were not called upon.[1]

Whatever doubts exist in some minds as to the value of the Reserve, the distrust is evidently not shared in by the Commander-in-Chief:—"This at least is certain, that our Army Reserve of 80,000 men places us in a military position that for either offence or defence, we have never before attained to in this country. . . . When that Army Reserve rejoins the colours the home Army would then be immeasurably superior to any Army we have ever had in England for 100 years; infinitely superior in every respect to the Army Wellington had at Waterloo, or to that we landed in the Crimea. Of this I have no doubt whatever; I am certain of it."

If all this be admitted it cannot be denied that for small wars, such as this country frequently engages in, the short-service system has not hitherto proved satisfactory. The military authorities are powerless to stiffen the home battalions, which are admittedly unfitted for fighting purposes, with a single man from the Reserve for the purposes of a small war. The result is that we have the greatest difficulty in raising 5,000 men to go anywhere without splitting up battalions. There is a prospect, however, of this defect being remedied.[2]

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The Niger Coast Protectorate Force consists of about 500 men, which is considered insufficient, taking into consideration the nature of the country and its inhabitants, and the fact of the existence of unruly tribes in the Protectorate, who will have to be taught a lesson sooner or later. Its equipment consists of the Martini carbine, the most useful weapon for bush work, artillery pattern sword bayonet, and black leather belts and straps. The uniform is blue serge coat and knickerbockers, piped with red, and somewhat similar to the uniform of the Gold Coast Hausas, so well known now at home, red fez with tassel, bare feet and legs. The Force has four 7-pounder field guns, which can be dismounted in a few seconds, and carried in 50-lb. loads; the gun itself being strapped on to bamboos, and forms a load for two men. There are also three Maxims with the Force, and it speaks well for the drill and training of the men that, ignorant savages as they

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[1] But to the great credit of the Militia Service no fewer than fifty-two battalions, representing a force of 50,000 men, made a voluntary offer of their services to the Government. In the House of Commons, on the 7th August, 1882, the Secretary of State for War stated:—"The offers we have received from Militia battalions, not only seeking to be embodied, but placing themselves at Her Majesty's disposal for active service in Egypt, are quite without precedent."

[2] See memorandum of Secretary of State for War, relating to the Army Estimates, 1898-99, p. 342 of this Journal.

more or less are when they enlist, nearly every man of the gunners' company could be trusted to take charge of either a 7-pounder or a Maxim. Much of the credit for the present satisfactory position of the Force is due to Sir Ralph Moor and the first officers for the quick and successful results that attended their early efforts. He was succeeded in the command by Captain Price, of the 33rd Regiment, a thoroughly smart and fine soldier, who was killed in one of the small expeditions on which the Force proceeds every year. Sir Claude MacDonald then offered the command to Captain A. Boisragon, who considers it "one of the most reliable of Her Majesty's many colonial regiments." Three times has it acted in conjunction with a naval brigade in punitive expeditions, and in each it has earned the hearty approbation of the admiral commanding for its steadiness and pluck, as well as the praise of many other members, officers and men, of the Naval Brigade.

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Mr. S. M. Milne, of Calverley, near Leeds, has kindly presented to the Museum of this Institution a helmet worn by a trooper of the 8th Light Dragoons about the period 1790-94. It is a development of the Light Dragoon helmet depicted on p. 95 of Luard's "Dress of the British Soldier," which was worn in the early part of the reign of George II. The helmet is made of black leather, and has on the brass plate in front the device of the harp and crown of Ireland, conferred on the regiment in 1777. Round the lower part of the helmet is a turban, apparently of black silk, kept in its place by small chains, and somewhat resembling the puggrees worn by our troops round their white helmets. On the crest of the helmet is a red horse-hair plume. The turban was originally an important feature in the head dress, and is supposed to have originated as a protection for the head, but in the case of the British Light Dragoons, it was probably purely ornamental. Formerly the turban was fastened behind with a large knot, the ends ornamented with tassels hanging down over the back of the wearer's neck, but when the helmet introduced about 1790 came into use the knot and tassels had shrunk very considerably. About the year 1798 a bearskin crest fore and aft (*see* p. 100, Luard's "Dress of the British Soldier") covered the entire top of the Light Dragoon helmet; still, the turban with chains was retained and could be seen at the sides of the helmet only. This remained until about 1812, when the broad-topped chako for the Light Cavalry, copied from that worn in the French Army, was introduced.

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The Commander-in-Chief has recently called for the opinions of commanding officers as to a suggested reform with regard to Soldiers' Defaulter Sheets. The War Office suggestion is—in a few words—that the record of any offences committed during the first six months of a soldier's service should be expunged if, after the expiration of that period, he were to commit no offence during the twelve months following.

As nearly all recruits of the present day are but boys, it seems probable that the majority of commanding officers will readily admit the desirability of initiating a system by which acts of youthful impulsiveness and indiscretion should cease to stand recorded against a soldier throughout his career, however long and honourable it might happen to be.

A similar proposal to that now under consideration was made by Major Pearse, East Surrey Regiment, in the *United Service Magazine* of April, 1895.

Major Pearse suggested that after a period of two years, free of military offences, a soldier should be given a clean "company" defaulter sheet, and that entries in the "Regimental" sheet should, in like manner, be expunged after a period of five years free from crime.

To the civilian reader it would hardly appear that there could be any doubt as to the desirability of giving our young soldiers a chance of turning over a new leaf, and of erasing, by steady conduct as grown men, the record of the follies

of their youth and inexperience; but advocates of the present system of the permanent record of military offences would argue as follows:—

*a.* A permanent record makes an entry of misconduct a serious matter; one which stands against the soldier for the remainder of his service, and which may affect the character which he takes with him into civil life when he leaves the Army. The result of the record being irrevocable is, it would be urged, that the soldier thinks, or should think, seriously before so committing himself as to incur an entry in his defaulter sheet.

This argument, possibly sound as applied to the actions of a grown man, has no weight in connection with the thoughtless, and usually trifling, offences for which a recruit is punished.

*b.* Under the present system of permanent record, exceptionally well-behaved soldiers have a justifiable advantage over the less consistent. By unvarying good conduct from the day of enlistment they keep a "clean defaulter sheet," and thereby reap their reward. It would be unfair and disheartening to these men, it might be urged, that careless and irregular recruits, who joined the Service under like circumstances to their own, should be enabled to regain clean defaulter sheets, in no way inferior to their own, and thus leave the Army on equal terms with soldiers who have never misconducted themselves. In this argument there is considerably more weight than in the first.

When, however, it is remembered that most soldiers enlist at or under the age of eighteen years; when, too, one thinks of the bad preparation for a life of punctuality, of orderly and respectful conduct, that most recruits have received in their own homes; and when one remembers that many of the non-commissioned officers under whom these recruits serve are but little older or more experienced than themselves, it seems that the innovation of permitting the offences of the first six months of a soldier's service to be redeemed by subsequent good conduct is a highly commendable one.

Has not the time come, too, when that antiquated bug-bear, the "Scale of Fines for Drunkenness," should be removed from the walls of barrack-rooms? It may be doubted if, in the bad old times, any man was really deterred from getting drunk, if his inclinations led him that way, by the perusal of this proclamation against sin; assuredly the young soldier of the present day, who is rarely addicted to drink, stands in no need of the warning; and, if he did need it, would be more or less than human if it had any effect on him beyond causing annoyance.

What estimate of the sobriety of the Army would be formed by the family of that much-desired acquisition, the recruit of respectable position, if, on entering the barrack-room of their young hopeful, the minatory "Scale of Fines" were the first ornament that met their astonished gaze?

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The Militia returns for 1897, which have been issued as a Parliamentary paper, state that the total number of men of all arms, including the Medical Staff Corps, on the establishment last year was:—England and Wales, 88,725; Scotland, 15,695; and Ireland, 29,082—total, 133,502. The numbers present at the annual training were:—England and Wales, 64,575; Scotland, 11,743; Ireland, 23,156; or a total of all ranks of 99,474. The number enrolled was 74,759 in England and Wales, 14,127 in Scotland, and 25,702 in Ireland, or a total of 114,588. The number of all ranks absent from training amounted to 15,114, of which 7,183 were absent with leave, and 7,931 without leave. The 3rd Battalion (The Queen's) and the 3rd Battalion Middlesex Regiment had most absentees without leave, the numbers the same in each battalion—168. The battalions with the smallest number of illegal absentees were the 3rd Battalion Norfolk Regiment, three men, and 3rd Battalion Bedfordshire, six men. This does not include the small Submarine Mining Divisions, one of which—the Plymouth—had no absentees.

A similar return for 1897 of Yeomanry Cavalry in Great Britain shows that the establishment numbered 11,891, of which 10,191 were enrolled and 8,829 were

present at the annual training, 1,362 were absent from training, 1,083 with leave and 279, including two officers, without leave. The strongest regiment at training was the Yorkshire Hussars, 379, and the weakest the Royal East Kent, 126. The force was equipped with 8,909 horses, of which 6,540 were the property of the men.

A memorandum in regard to the Volunteer Force shows that there is a decrease of 4,145 compared with 1896, and that it is in part due to the physical test to which recruits are now subjected.

The report of the Army Medical Department for 1896, which has just been issued as a Blue-book, states that the average strength of European troops serving at home and abroad in the British Army in 1896, as computed from the returns received by the department, was 203,145 warrant officers, non-commissioned officers, and men. Of this force there were 191,513 admissions to hospital and 1,676 deaths. The ratios represented by these numbers are, for admission to hospital 942·7 and for deaths 8·14 per 1,000, the latter being calculated on a strength of 205,800, which includes detached men. There were also 53 European soldiers serving in West Africa, among whom there were 165 admissions into hospital and three deaths. Details respecting this force will, in future, be included in statistical tables. The statistics of the troops serving in the United Kingdom during the year show that the ratios of both sickness and mortality were lower than in 1895, and considerably below the average ratios for the preceding ten years. The general health of the troops in the Colonies was, on the whole, satisfactory, but at Malta continued fevers were more prevalent than in 1895, and in Ceylon and China malarial fevers were the cause of a large amount of sickness, but much of this sickness was attributed to the arrival of troops from malarial districts in India. A considerable increase in the admission rate for venereal diseases in the West Indies is recorded, and, as in the previous year, venereal disease shows excessive prevalence in China and the Straits Settlements. In India there was again a decline in the admission rate, but the ratio of constant inefficiency was fractionally higher than in the previous year. There was more sickness from enteric, other continued fevers, and cholera. Malarial fevers, while less prevalent than in 1895, accounted for almost one-fifth of the total number of admissions. With regard to venereal disease, there was a notable increase in the sickness from secondary syphilis, but a decline in the other forms of venereal disease. The total admissions for venereal diseases accounted for more than one-third of the admissions into hospital. The general health of the troops in Egypt was good, and the improvement noted in the reports for the two previous years still continued, but enteric fever and venereal diseases were the cause of more sickness than in 1895.

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MEMORANDUM OF THE SECRETARY OF STATE FOR WAR, RELATING TO THE ARMY ESTIMATES, 1898-99.

The Estimates for 1897-98 were drawn up on the assumption that the following additions would, in the near future, be made to the Army :—

| | All ranks. |
|---|---|
| Field Artillery ... ... ... ... ... ... | 196 |
| Garrison Artillery ... ... ... ... ... | 3,641 |
| Foot Guards ... ... ... ... ... ... | 2,861[1] |
| Infantry of the Line ... ... ... ... ... | 185[2] |
| West India Regiment... ... ... ... ... | 1,011 |
| | 7,894 |
| Malta Militia ... ... ... ... ... ... | 1,130 |
| | 9,024 |

[1] This figure includes an increase of 638 to the Foot Guards (depôts, etc.), sanctioned after the original Estimates of last year were put forward.

[2] This was the net increase to the Infantry of the Line. Part of the increase to the Cameron Highlanders was met by a contemplated reduction in the size of certain depôts.

Provision was made for the raising of the following numbers during the year 1897-98:—

| | All ranks. |
|---|---|
| Field Artillery ... ... ... ... ... ... | 196 |
| Garrison Artillery ... ... .. ... ... | 730 |
| Foot Guards ... ... ... ... ... ... | 954 |
| Infantry of the Line ... ... ... ... ... | 185 |
| West India Regiment... ... ... ... ... | 337 |
| | 2,402 |
| Malta Militia ... ... ... ... ... ... | 565 |
| | 2,967 |

These increases will, it is hoped, have been completely carried out by the end of the financial year, the actual increase in effectives in the Regular Army since the 1st April, 1897, amounting on the 1st February, 1898, to 2,632, apart from the increase in the Malta Militia. The total number of recruits raised during 1897 for the Regular Army was 35,015, as compared with 28,522 in 1896. But this increase of 6,493 in the number of recruits has been in great measure balanced by the unusual number of discharges and transfers to the Reserve.

The Estimates for 1898-99 provide for the further carrying out of the programme of last year by the addition of 2,356 men to the Regular Army, and 565 to the Malta Militia.

When these increases have been obtained there will remain 2,183 of all ranks to be added to the Garrison Artillery, and 953 of all ranks to be added to the Foot Guards. The other additions will have been completed.

Recent developments in various parts of the world, and a further consideration of our requirements for the defence of the Empire at home and abroad, have shown that the increases contemplated in the Estimates of last year will not be sufficient for the purpose of placing the various branches of the Service in a position to carry out satisfactorily the duties required of them, and the Estimates for 1898-99 therefore provide for further additions to the strength of the Army.

The following table shows the ultimate increase in the numbers of the Army (all ranks) under the main proposals of 1897-98 and those now put forward, amounting in all to 25,000 men (excluding minor miscellaneous changes:)—

| | Programme of 1897-98. | Programme of 1898-99. | Total increase to the Army. |
|---|---|---|---|
| Cavalry ... ... ... ... | — | 684 | 684 |
| Horse and Field Artillery ... ... | 196 | 3,257 | 3,453 |
| Garrison Artillery ... ... ... | 3,641 | 73 | 3,714 |
| Foot Guards ... ... ... | 2,861 | — | 2,861 |
| Infantry ... ... ... ... | 185 | 12,045 | 12,230 |
| West India Regiment ... ... | 1,011 | — | 1,011 |
| Total ... ... | 7,894 | 16,059 | 23,953 |
| Malta Militia ... ... ... | 1,130 | — | 1,130 |
| Total ... ... | 9,024 | 16,059 | 25,083 |

The increases in the various arms of the Service are accounted for as follows:—

It is proposed to raise the 2 cavalry regiments in Natal to foreign establishment, and to increase the strength of the regiment at home which has been on a specially low establishment. For the above purposes, 311 men and 187 horses are required. It is, moreover, proposed to increase the efficiency of the 8 regiments on the higher establishment at home by adding 32 horses to each, or 256 in all.

In order to give some elasticity to the Cavalry Establishments, provision is made for additional men to be allotted to such regiments as may be found to require a temporary increase of strength. A similar measure has already been adopted in the infantry.

The addition of 1 battery last year provided a total strength at home of 55 horse and field batteries, being the full complement for 3 army corps according to the then accepted scale. Since that time 3 batteries of field artillery have been sent to South Africa. There is, moreover, reason for believing that the scale adopted has not been sufficiently liberal; it is based upon a proportion of about 4 guns to 1,000 bayonets. This proportion will now be increased to one of about 5 guns per 1,000 bayonets, or 20 batteries (horse and field) for each army corps. If this proportion be accepted and 4 batteries be allotted to the 4 cavalry brigades, a total of 64 batteries will be required, involving an increase of 12 batteries, or 72 guns. It is, moreover, proposed to maintain 3 batteries of howitzers in addition to the full equipment of field guns, and there is accordingly included in the Estimates a total increase of 15 batteries, or 90 guns. The new batteries will be kept on a peace establishment of 4 guns.

The formation of the 15 new batteries will be spread over 3 years, and provision is made for 5 batteries during 1898-99.

The depôts of the Horse and Field Artillery will be increased to an establishment of about 1,500, in order that recruits may receive some preliminary training before being passed into the batteries at home.

The additions recently made to the strength of that portion of the Army which is employed beyond the limits of the United Kingdom have had the effect of reducing the force of infantry which remains at home to a point at which it has ceased to be sufficient, either for the purpose of supporting the battalions abroad or for providing the force which, in the opinion of the military authorities, it is necessary to maintain for home defence.

The existing organisation of the infantry is based upon the principle that every battalion permanently employed abroad should be supported by a battalion at home. This principle it is intended to maintain. There is at present a large excess on the foreign, and a large deficiency on the home establishment. This disparity is, however, to a considerable extent, due to the exceptional circumstances of the moment, and a considerable diminution in the deficit may be confidently anticipated. The number of additional battalions which may be ultimately required to establish a proper proportion between those serving abroad and at home, cannot, however, for the present, be determined with accuracy; nor would the attempt to lay it down be at this moment of any practical utility. An attempt to raise simultaneously a large number of battalions, would have the effect of considerably deferring the completion of any of them, and in the meantime the system would receive no relief from the strain to which it is subjected. It is accordingly proposed to commence at once to raise 6 new battalions, as large a number as can probably be completed without undue delay, and to add these in pairs to existing double-battalion regiments. During the year the position will be further considered, with a view to the ultimate restoration of the proper balance between the force at home and that permanently required abroad.

Provision is also made for maintaining at a strength of 600 men the depôts required to provide drafts for certain regiments of which both battalions may be expected to remain abroad for some time to come.

The difficulty which is experienced in finding the necessary drafts for battalions serving abroad (the establishments of which have in recent years been increased), without unduly depleting the battalions at home, renders it desirable to give the latter somewhat larger numbers on which to draw; and it is therefore

proposed to add 80 rank and file to the establishment of home battalions, raising it from 720 to 800.

It should be observed that the full numbers which it is contemplated to raise under the present proposals, and those of last year, are included in Vote A (numbers), though the sums asked for in the money votes only cover the cost of raising a part of these increases.

A certain number of men will be enlisted for the Infantry of the Line for a term of 3 years' colour service, with option of extension to 7 years; the proposed increase to the establishment of the home battalions will facilitate the trial of this experiment without endangering the supply of drafts to the battalions abroad.

It is proposed to give an allowance of 3d. per diem to cover the cost of groceries and vegetables, hitherto defrayed by a stoppage from the soldier's pay. The effect of this change will be that he will receive 1s. a day instead of, as at present, 9d.; but this increase will be received only by men who are 19 years of age, and have rendered themselves efficient for military service. It will not be given to men enlisted for only 3 years' service with the colours.

On the other hand, it is proposed to abolish the deferred pay of 2d. a day, at present given to the soldier on his discharge or transfer to the Reserve, and to substitute for it a gratuity at the rate of £1 for every year of service with the colours, up to a maximum of £12. Men transferred to the Army Reserve after 3 years, and men entitled to pension, will receive a gratuity of £2. These changes will, however, afford a substantial net gain to the soldier, and men actually serving will be given the choice of coming under the new conditions as to pay, etc., or of remaining under the old.

With a view to facilitating the preparation of a force for special service out of the United Kingdom, when required, from the battalions at home, without mobilising the Reserve, a Bill will be introduced to enable infantry soldiers on leaving the Colours to undertake voluntarily the liability to recall during their first year of Reserve service. Men who assume this liability will receive extra Reserve pay of 6d. a day, making with the ordinary Reserve pay 1s. in all. The number of the Special Reservists for whom pay is provided is 5,000.

The Estimates for 1898-99 show an increase beyond those of the preceding year (including the Supplementary Estimate of £200,000 for South Africa) of £880,000, and amount to a net total of £19,220,500. This sum, however, does not represent the total expenditure which it is proposed to incur, as half the amount due for the Capitation Grant to the Volunteers will, as last year, be obtained by a Supplementary Vote during the current year, and be paid before the 31st March, 1898.

The Supplementary Vote will also provide for expenditure on clothing and stores, as well as other supplies, in aid of the votes for 1898-99. By this arrangement a reduction of £766,000 has been made on the total amount of the Estimates, which would otherwise have stood at the sum of £19,986,500, or an increase of £1,646,000 over those of the current year. These payments naturally affect the totals of the votes concerned and in some cases cause an apparent reduction as compared with this year's figures.

The additional sum provided in the Estimates of this year for making further progress with the increase of the Army, under the proposals of 1897-98, amounts to £120,000, and the sum provided for the first instalment of the increase now proposed to £374,000.

The following table shows the cost of the two sets of proposals from the outset, and the ultimate normal cost when pensions and other charges have accrued, with the increases involved as compared with the year 1898-99.

But these increases will, to a certain extent, be balanced by the reduction in the non-effective cost of the existing force which may be looked forward to in future years.

| —— | 1897-1898. | 1898-1899. | 1899-1900. | 1900-1901. | 1901-1902. | Ultimate Normal (including pensions). |
|---|---|---|---|---|---|---|
| | £ | £ | £ | £ | £ | £ |
| 1897-98 Programme.. | 120,000 | 240,000 | 335,000 | 387,000 | 406,000 | 560,000 |
| 1898-99 ,, ... | ... | 374,000 | 593,000 | 834,000 | 744,000 | 956,000 |
| Total ... | 120,000 | 614,000 | 928,000 | 1,221,000 | 1,150,000 | 1,516,000 |
| Increase on sums provided in Estimates of 1898-99 | ... | ... | 314,000 | 607,000 | 536,000 | 902,000 |

The increase on Vote 1 of £318,600 is largely due to the provision of the pay, etc., of the further instalment of the additional men to be raised under the 1897-98 programme, and also of the number to be raised under the proposals now put forward. Moreover, the extra pay of Army Reservists, who undertake the special liability above referred to, involves the provision of an additional sum of £45,000.

The Army Reserve numbered, on the 1st January, 1898, 82,005 (including 13,345 Supplemental Reservists) as against 78,100 (including 7,173 Supplemental Reservists) on 1st January, 1897. A larger sum for the pay of the Army Reserve has been provided to meet this increase in numbers.

Provision is made for giving 24 battalions of Militia an extended training, with a view to some of them taking part in manœuvres.

There is a decrease of £13,000 in the Volunteer Vote. The number of enrolled Volunteers is smaller by 4,145, and the number of efficient Volunteers by 3,501, than last year. This is no doubt due in part to the physical test to which recruits are now subjected.

The special expenditure on transport to South Africa last year raised the total of the transport vote to an abnormal figure, and the vote shows this year a decrease, which would have been greater but for a considerable sum being taken to meet the cost of manœuvres.

The increase on Vote 7 of £725,200 includes provision (£578,000) for the grocery allowance of 3d. a day explained above. The full cost of this measure, which will not be reached next year, will be about £650,000. On the other hand, the proposed substitution of gratuities for deferred pay, which, for the force now contemplated, would have amounted to £440,000, will involve a saving to be set against the above £650,000 of about £350,000 a year, leaving a net increased cost of about £300,000 a year. As compared, however, with the charge for deferred pay included in the current Estimates, the measures proposed involve an increase of about £400,000.

The enhanced cost of provisions and forage in South Africa, together with the increase in the numbers of the Army, and provision for large manœuvres, accounts for the balance of the increase on this vote.

The votes for clothing and stores both show reductions, which result from the provision of considerable sums by supplementary estimate during the current year in anticipation of next year's requirements.

The conversion of all the guns of the Royal Artillery is now complete and a reserve of 6 fully-equipped batteries and 10 spare guns has been established, and provision is made for the manufacture, during next year, of the guns, carriages, etc., required for the 5 field batteries, which it is contemplated to raise during 1898-99, together with 1 battery as part of the reserve of the increased force.

All the Rifle Volunteers will, as contemplated in the Estimates of the current year, have been armed with the magazine rifle by the 31st March next. It is proposed to issue the magazine carbine to all Artillery Volunteers before the 31st March, 1899, by which date the whole of the Auxiliary Forces will have been equipped with a magazine arm.

The authorised reserves of small-arm ammunition are complete, and provision is made in the Estimates for the requirements of the year, allowing for the increase of the Army.

The Vote shows nearly the same total as last year. The scheme for the provision of barrack accommodation for the additional forces which it is proposed to raise, is under consideration. There is, however, no need for the immediate construction of new barracks beyond what has been already provided for in the Barrack Loan and Military Works Loan.

The vote for the War Office again shows a decrease, due to reductions in the higher grades of the civil establishment.

Though the general tendency of the non-effective votes, over a number of years, is to decrease, there is this year an increase of £24,000, due to an unusual number of retirements of regimental and departmental officers.

LANSDOWNE.

*17th February, 1898.*

RETURN giving particulars of the Batteries and Battalions present at Aldershot on the 1st day of July, showing the effective strength of each Battery and Battalion, the Establishment, the Number of Men who would be left at Home on Account of Length of Service in the event of the Battery or Battalion being ordered Abroad on War Service, and the Number which would be required to raise each Unit to War Strength.

| Unit. | Effective Strength on 1st July, 1897. | Establishment. | Number of Men who would be left at Home (exclusive of those medically unfit).* | Number required to raise each Unit to War Strength (exclusive of the Number required to replace Men medically unfit). |
|---|---|---|---|---|
| **ROYAL HORSE ARTILLERY.** | | | | |
| "E" Battery | 164 | 162 | 26 | 41 |
| "O" ,, | 158 | 162 | 15 | 36 |
| "T" ,, | 151 | 152 | 19 | 47 |
| **FIELD ARTILLERY.** | | | | |
| 12th Battery | 157 | 161 | 33 | 46 |
| 18th ,, | 143 | 161 | 20 | 47 |
| 38th ,, | 123 | 136 | 24 | 71 |
| 56th ,, | 149 | 161 | 17 | 38 |
| 62nd ,, | 152 | 161 | 7 | 25 |
| 66th ,, | 138 | 161 | 20 | 52 |
| **FOOT GUARDS.** | | | | |
| Grenadier Guards — 1st Battalion | 969 | 801 | 130 | 237 |
| Grenadier Guards — 2nd ,, | 732 | 801 | 48 | 392 |
| Grenadier Guards — 3rd ,, | 687 | 801 | 41 | 430 |
| Coldstream Guards — 1st ,, | 801 | 900 | 101 | 376 |
| Coldstream Guards — 2nd ,, | 765 | 900 | 76 | 387 |
| Scots Guards — 1st ,, | 797 | 906 | 83 | 368 |
| Scots Guards — 2nd ,, | 775 | 906 | 82 | 389 |
| **INFANTRY OF THE LINE.** | | | | |
| Royal West Surrey Regiment 2nd ,, | 641 | 775 | 138 | 573 |
| Liverpool Regiment 2nd ,, | 727 | 775 | 173 | 522 |
| Lincolnshire Regiment 2nd ,, | 693 | 775 | 81 | 464 |
| Somersetshire Light Infantry 2nd ,, | 639 | 775 | 128 | 565 |
| South Wales Borderers 2nd ,, | 717 | 775 | 187 | 546 |
| King's Own Scottish Bordrs 1st ,, | 677 | 775 | 183 | 582 |
| East Lancashire Regiment 2nd ,, | 721 | 775 | 150 | 505 |
| Border Regiment 1st ,, | 776 | 775 | 241 | 541 |
| South Staffordshire Regiment 1st ,, | 655 | 775 | 98 | 519 |
| North Lancashire Regiment 2nd ,, | 747 | 775 | 187 | 516 |
| Royal Berkshire Regiment 2nd ,, | 740 | 775 | 215 | 551 |
| King's Royal Rifle Corps 3rd ,, | 637 | 775 | 178 | 617 |
| ,, ,, 4th ,, | 623 | 775 | 139 | 592 |
| Manchester Regiment 1st ,, | 638 | 775 | 106 | 544 |
| Gordon Highlanders 2nd ,, | 747 | 781 | 169 | 504 |
| Royal Irish Fusiliers 2nd ,, | 725 | 775 | 160 | 511 |
| Royal Dublin Fusiliers 1st ,, | 749 | 775 | 162 | 489 |
| Rifle Brigade 2nd ,, | 740 | 775 | 200 | 536 |
| Total | 19,453 | 21,388 | 3,637 | 12,659 |

* Assuming that men under 20 years of age would be left at home unless they had completed one year's service.

EVELYN WOOD,
*Adjutant-General.*

The following is the Report of the Inspector of Army Signalling for the year 1897:—

"A—United Kingdom and Colonies.

In all three branches of the Service considerable improvement has been manifested, more especially in the Royal Horse and Field Artillery, and the Infantry.

Units were inspected in a similar manner to last year, with the exception of the Royal Artillery, one of whose two cipher messages was replaced by an ordinary service message, making the test for this corps slightly easier.

The institution of the service messages as the basis and practical test of the inspection has had excellent results, and signallers are now taught to apply their knowledge to circumstances which might occur in the field.

The following table shows the general results for the year:—

| | Inspected. | Failed to qualify. |
|---|---|---|
| Cavalry ... ... ... | 21 regiments ... ... ... | 13 |
| Royal Horse Artillery ... | 9 batteries ... ... ... | Nil. |
| Field Artillery ... ... | 45 ,, ... ... ... | 17 |
| Mountain Artillery ... ... | 2 ,, ... ... ... | 1 |
| Infantry ... ... ... | 97 battalions ... ... ... | 16 |

The net results when compared with last year may be stated as under:—

Cavalry, total points gained 542·95 or 25·85 per regiment.

Royal Artillery, total points gained 381·95 or 7·07 per battery.

Infantry, total points gained 1229·08 or 12·67 per battalion.

This very satisfactory improvement I attribute in a great measure to the messages being more carefully filled in as regards the details of the preamble and the writing, and also to more time and attention having been devoted by units to signalling.

The following statistics will show the accuracy some regiments have attained, and also the value of the new check for numbers.

Each battalion of the 30 heading the list this year read at the inspection 212 figures; this for the 30 units makes a total of 6,360 figures, all of which were read correctly, with three exceptions only.

I propose introducing short numerals with the same check, thereby saving considerable time, in the loss of which the sending of figures plays an important part, especially when the regimental numbers attached to lists of casualties have to be transmitted.

Though there is considerable improvement this year in the work done by the cavalry signallers, it still leaves much to be desired, and it cannot be too strongly impressed upon them that the first news from the front will generally be transmitted by mounted signallers, either cavalry or cyclists.

In the Colonies, when the weather permitted, units were inspected in the heliograph, and the results were on the whole satisfactory. In future one of the inspection messages at home will, when possible, be sent on this instrument, and it is to be hoped that more practice will be carried out with this apparatus.

The messages sent by semaphore are satisfactory; they averaged in length 35 words. The 30 infantry battalions first on the list read 2,100 semaphored words with only 10 mistakes, chiefly those of spelling, and in one case only was the sense of the message altered. I have had a satisfactory report from Crete as to this means of communication. In several cases units were penalised for not changing round: signallers should be more carefully drilled in the duties of the different numbers. Units who fail to change round will in future be disqualified.

I have again this year to draw the attention of commanding officers in some cases to the excessive rate of sending on the flag with the consequent loss of time and accuracy resulting therefrom. Some units still possess signallers who send in a manner and at a rate that the eye is physically unable to grasp, causing

constant repetitions and delay. If not read at first, these men increase their speed with the idea of making up for lost time, but with diametrically the opposite result.

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### School of Signalling.

During the year 62 officers and 90 non-commissioned officers attended the school with the following results:—

*Officers.*

| | |
|---|---|
| Awarded special certificates ... ... ... ... ... | 36 |
| Awarded instructors' certificates ... ... ... ... | 13 |
| Failed at final examination ... ... ... ... ... | 7 |
| Failed on joining to comply with paragraph 289, Section VII., Queen's Regulations ... ... ... ... .. | 6 |
| | 62 |

*Non-commissioned Officers.*

| | |
|---|---|
| Awarded "assistant instructors' certificates" ... ... | 85 |
| Failed at final examination ... ... ... ... ... | 4 |
| Retired sick, not examined ... ... ... ... ... | 1 |
| | 90 |

The School is now open during the winter months for the instruction of officers and non-commissioned officers, Royal Artillery, in flag signalling only, and at present there is a class consisting of 3 officers and 16 non-commissioned officers under instruction.

As a tentative measure a course of instruction in elementary field telegraphy and telephony is now going on for specially-selected trained signallers from the 1st Infantry Brigade, on the completion of which I shall forward a short report.

I have every reason to be satisfied with the work carried on at the School during the past year; all ranks have worked hard and displayed the greatest interest and keenness in everything connected with the course; the discipline throughout has been excellent.

### B.—Volunteers.

The following table for the last three years tells its own tale:—

| | Units. | | |
|---|---|---|---|
| | Examined. | Passed. | Failed. |
| 1895 ... ... ... ... | 77 | 60 | 17 |
| 1896 ... ... ... ... | 63 | 36 | 27 |
| 1897 ... ... ... ... | 45 | 21 | 24 |

The chief causes of failure this year must be attributed to the inaccuracy and slowness of the two service messages, clearly showing a want of instruction and practice in this particular work.

As a rule the reading and sending from the flag and lamp was satisfactory, but in many cases units came up for inspection indifferently prepared, and trusted more or less to luck in getting through.

Next year the inspection for badges will be similar to that carried out in the Regular Forces, that is to say, service messages alone will form the practical examination.

C. Kennedy, *Lieut.-Colonel,*
*Inspector of Signalling."*

Aldershot,
*14th December, 1897.*

Amongst the Cavalry the first three regiments in order of merit are the 13th Hussars, Royal Horse Guards, and 7th Dragoon Guards, all in the Home

District; of the Royal Horse and Field Artillery, the first three batteries are "O" Battery, R.H.A., 79th Field Battery, R.A., and "G" Battery, R.H.A., all of the Home District; of the Infantry, the first three in order of merit are the 2nd Bn. East Lancashire Regiment, Home District; the 2nd Bn. King's Royal Rifle Corps, South Africa; and the 2nd Bn. Hampshire Regiment, Home District.

The first three Volunteer corps in order of merit are the 12th Middlesex (Civil Service), the 6th V.B. Liverpool Regiment, and the 4th V.B. East Surrey Regiment, the first and third of which belong to the Home District.

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CANADA.—The annual general meeting of the Dominion Artillery Association was held at Ottawa on the 10th February. The attendance included the Earl of Aberdeen, Governor-General; Major-General A. G. Montgomery-Moore, commanding the troops, and Major-General W. J. Gascoigne, commanding the Militia. The following is the report of the Council for 1896-97:—"1. As matters of considerable interest and importance to the Canadian artillery have taken place since the 1st of July, 1897—on which date the official year of the association terminated—the Council have decided upon completing their report up to the present date. 2. The Council beg to submit the report herewith of the executive committee, and also the report of an extraordinary meeting of the Council held on January 29th. They are glad to know that the latter has been approved of by the Honourable the Minister of Militia and Defence. 3. The Council must again respectfully urge upon the consideration of the Government the absolute necessity of authorising the assembly of the officers, Nos. 1, drivers and horses of each field battery one day before that fixed for the commencement of the annual drill. When it is considered that the large majority of the field batteries have to leave for camp by the early train, the impossibility of deciding upon the acceptance of horses, and of fitting of harness, accoutrements, etc., without several hours' hard and unremitting labour, must be apparent to every observer. The Council estimate the additional drill pay required as about $1,700 for all the batteries. 4. The Council earnestly recommend that in view of the increase of the establishments of field batteries and change in armament, the allowance for drill instruction and care-taking be revised and increased. It is evident that with an increase of from 4 to 6 guns per battery, with a corresponding increase in horses, stores and *personnel*, the allowance should also be increased. It should also be apportioned in such a way that the batteries not enjoying special advantages have proportionately larger amounts provided for such purposes. 5. It also seems very desirable that, after due qualification, every subaltern in a field battery should hold the rank of lieutenant. These officers have equal responsibility, and should have the same rank. 6. The Council are pleased to know that the preparation of revised dress regulations is in the hands of a special committee. 7. The question of increased shed accommodation for field batteries, subsequent upon their new and increased armament, is one requiring very urgent attention at present. In many cases their guns and stores are packed so closely as to quite prevent proper care and attention being given them, while any voluntary drills in the gun sheds are quite out of the question. 8. The question of garrison artillery armament has apparently not yet been finally decided upon, and the Council would again draw attention to the recommendation which they have previously made, viz., that, in order to ensure efficiency, an issue of sufficient modern guns should be made to those garrison artillery units which will be required to use them in the event of actual service, and that those corps, when mobilised for the manning of coast defences, should be afforded an opportunity of drilling and practising annually with the guns actually in position."

In the discussion which followed, Major-General Montgomery-Moore said he was a cavalry officer, but knew something of artillery. He congratulated Canada upon the fact that it was getting modern rifles and guns. The moral effect of

having arms of that description was tremendous. It had been said by some that modern guns should not be given to those who were not used to them, but he maintained that a country could not afford when arming its troops to buy obsolete weapons. He approved of the suggestion for an interchange of troops, but he suggested that Canada might go further, and send one of its excellent batteries to England. The idea of having Imperial troops serve in the Colonies and colonial troops visit England was very popular in England. The Prince of Wales, the late Commander-in-Chief, the Duke of Cambridge, and Lord Wolseley favour it. I am sure that all the members of the military profession in England are extremely desirous of seeing such an exchange between the mother country and the Colonies, as likely to tend more than anything else to draw closer the ties which unite them. He spoke flatteringly of "A" Battery, R.C.A., which he had seen at Kingston, and which so astonished his military secretary, an old brigade major of artillery. He only hoped that this battery would be exchanged for a battery of the R.A. Such exchanges would bind the Empire together. He spoke in flattering terms of the company of the Royal Regiment of Canadian Infantry exchanged with a company of the Royal Berkshire.

Major-General W. J. Gascoigne, commanding the Militia, said that six batteries of 12-pounder field guns had been distributed during 1897; that, by a certain re-arrangement of purchases, guns for two additional batteries had been secured, and that he had recommended to the Government that a sufficient sum of money be provided in the Estimates this year to purchase guns for two more batteries. He had every reason to believe that his recommendation would be carried out, and in that event, Canada would have 60 field artillery guns of the most approved pattern. He announced that the Quebec cartridge factory is being fitted up with machinery to provide shells for these 12-pounder guns. He said that the whole of the Militia would shortly be provided with the most modern equipment, and that the Oliver equipment is the best that could possibly be given the Militia. He expressed his regret that the new garrison guns, which were practically ordered last year, had not yet been obtained. The Department had, however, been advised to await the result of an enquiry by a military committee in England as to the best possible gun to be given to the Canadian artillery. At the present moment they are discussing in England, with the knowledge they possess there of the wants of Canadian defence, the best class of gun to give.

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AUSTRIA.—Colonel Von Stipsicz, of the Austrian Artillery, after detailing the peculiar functions of cavalry and in particular its weakness when on the defensive, calls attention to the necessity of supporting, with infantry and artillery, operations undertaken independently by large bodies of cavalry. He thinks that machine guns will be found to be the best support to cavalry in offensive or forward operations, while on the defensive they can do almost all the work required of infantry, though he recognises that even the best rapid-fire gun can never wholly supply the place of infantry. The colonel is in favour of the machine gun being placed on wheels, and not on a pack saddle, and thinks that one horse ought to be able without difficulty to haul a machine gun over any obstacles a cavalry commander is liable to encounter; ammunition, also, sufficient for the first few rounds is more easily carried with a gun on wheels. The gunners should be mounted, and the guns should be grouped in batteries of four guns under an artillery officer. In the cavalry division he recommends that the batteries should not be attached to regiments or brigades, but be directly under the orders of the general commanding the division. One battery should, in his opinion, suffice for a division. He admits that the machine gun can never take the place of the horse artillery gun, so far as cavalry is concerned, nor the place of infantry; but thinks it can supply the absence of infantry until its arrival in the field, and that it can favourably and usefully complete the work of the horse artillery batteries.—*Organ der Militär-wissenschaftlichen Vereine.*

BULGARIA.—The following modifications in the organisation of the artillery have been decided upon:—The field artillery is to consist of six regiments, each composed of three groups of three batteries each—in all fifty-four field batteries. The mountain artillery is to form one regiment of nine batteries, and the fortress artillery, one regiment of three battalions, each consisting of five companies—in all, fifteen companies.—*Revue Militaire de l'Étranger.*

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GERMANY.—In the Estimates for 1898-9, provision is made for the creation of a new department at the War Ministry, namely, that of the Master of Field Material, or Master-General of the Ordnance. At the head of this department will be a lieut.-general or senior major-general, who is to be entrusted with the supervision of the technical duties connected with manufacture of war material. The department will take over the four inspections of artillery arms and material, an inspection of the artillery stores, an inspection of the train stores, an inspection of the artillery and infantry technical establishments and manufactories of arms and ammunition, an inspection of analogous artillery establishments, powder mills and factories of guns and projectiles, and the consideration of all questions which may be submitted to the department.—*Revue du Cercle Militaire.*

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With regard to the above, the following are additional details:—The small-arm factories of Danzig, Erfurt, and Spandau, and the cartridge factory of Spandau, are included in the inspection of infantry technical establishments. The gun factories of Spandau, Strassburg, Danzig and Deutz, the pyrotechnic laboratories of Siegburg and Spandau, the powder mills of Hanau and Spandau, the shell factory of Spandau, and the experiment department of Spandau, belong to the inspection of artillery technical establishments.—*Revue d'Artillerie.*

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Good eyesight is not decreasing among Germans, especially in the Army. On the contrary, it has increased to a remarkable degree during the last twenty years. According to statistics furnished by Surgeon-General Seggel the proportion of recruits endowed with more than the normal power of vision, is now 92 per cent., whereas in 1873 it was not more than 56.—*Revue du Cercle Militaire.*

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The training to which cavalry horses are subjected is no guarantee that they will do their duty if ridden by *Meldereiters* or officers of infantry. Horses that have been used almost exclusively in the school, or even in the ranks, may not be easily induced to act singly. They miss the horses with which they have been accustomed to work, and show, very frequently, a strong desire to return to their society. They are not habituated to the sights and sounds of the streets, nor to the objects met with in the country, and consequently they shy, or are restive and unmanageable. The better training of Army horses has been a subject of much discussion. It is naturally said that if horses are trained in a riding-school, with an occasional visit to an exercise ground, and always in company, they are not fitted for individual work either in a town or across country. They must be broken and bended, it is true, in the school or *manège*, and they must be suppled and taught to obey the aids. In fact they must, like the soldier, be thoroughly drilled and disciplined. But that is not enough. Their powers must be cultivated, not merely by gallops, but by jumps and by scrambling up steep banks. They must also be taught to stand sudden noises, musketry fire, and the rapid movement of horses and wagons, etc. The obedience taught in the school is a good foundation, but unless it is followed by experience out of doors the temptation to go wrong is often too much for the equine pupil. It is therefore advocated that more attention should be paid to the practical education of the military horse for his duties in the field.

The performances of the cyclists in the Imperial manœuvres of last year have created much interest in the minds, not merely of writers and critics, but also of professional soldiers. The higher ranks have shown themselves rather slow to recognise the value of the cycle, and seem to regard it as a toy, of which serious account can hardly be taken; but the Army in general is beginning to understand its value. The West Army had 180 cyclists, and the cycling company of the Bavarian Army consisted of 110 officers and men, but the experience gained has not been sufficient to enable a complete system of cyclist tactics to be worked out. It is, however, quite certain that large and varied use will yet be made of cyclist detachments. These troops must be employed in the ordinary duties of infantry, using their rifles on foot, and availing themselves, when necessary, of their cycles. Their extreme mobility will make them highly effective, if well handled. Considerable discussion has taken place on the best pattern of war cycle, but it can hardly be doubted that a folding machine is preferable. It can be carried on the back like a knapsack, and the cyclist should have little or nothing else in the nature of impedimenta to carry. Great improvements have recently been made in military machines, the latest and best include the "Styria-Klapprad," the "Gerard," and the "Gerard-Klapprad."—*Militär-Wochenblatt.*

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HOLLAND.—During the year 1897, the repeating rifle, M/95, was passed into the Service, and 24,000 of that pattern, together with 4,000,000 ball cartridges, were sent to the Dutch East Indies. In addition to these, 5,000,000 cartridges were ordered, and were to be delivered in December, 1897, as well as the necessary apparatus for filling cartridges, so that the work might be done in the Colony. In the beginning of 1898, 1,250 new repeating-carbines ordered in Holland were to be delivered, and about the same time, it was hoped, the new 12·12-centimetre guns and mortars ordered from Krupp, would be received by the Government.—*Militair Weekblad.*

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ITALY.—The Italian bullet of 6·5 millimetres penetrates ordinary vegetable mould to a distance of 1·25 metres up to a range of 500 metres. If the soil is absolutely dry its penetration at the same range is 0·80 metre; and 0·60 metre when the soil is damp. At 1,000 metres its penetration of the above-named varieties of soil is, respectively, 0·90, 0·55, and 0·45 metre. At 1,500 metres it is 0·70, 0·45, and 0·35 metre; and at 2,000 metres it is 0·60, 0·20, and 0·20 metre. At 100 metres range the same projectile penetrates soft wood 1·10 metres, and hard wood 0·50 metre, while the projectile of 8 millimetres penetrates soft wood only 0·75 metre, and hard wood 0·40. At 1,000 metres, the 6·5 penetrates soft wood 0·30 metre and hard wood 0·20, while the 8 obtains only 20 and 15 respectively. The bullet of 8 millimetres pierces mild steel 7 centimetres, at a range of 100 metres, and 2 centimetres at a range of 600 metres, but the 6·5 obtains results superior by one-third in the matter of penetration.

Three batteries of field artillery have arrived at the central artillery school at Nettuno to assist in the experiments now being carried out with the new artillery material. The experiment committee is under the presidency of Lieutenant-General Adami. Six Q.F. guns are submitted for examination and trial, four of them having been sent by foreign engineering establishments, and the remainder by the Government foundries of Turin and Naples.—*Revue du Cercle Militaire.*

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PORTUGAL.—The Portuguese fortresses have been divided into two classes, and the fortress troops are undergoing re-organisation. The three fortresses of the first-class are:—1. The fortifications of Lisbon. 2. The fortress of Elvas; and 3. The Castle of St. John the Baptist in the Azores. To the second-class belong the works of Valencia, the Castle of Viana, that of St. John de Foz on the Douro,

and the fortifications of Cascaes. The first-class fortresses have governors and lieutenant-governors, the appointment of governors being limited to brigadier-generals, and that of lieutenant-governors to full colonels of artillery or engineers. The second-class fortresses are commanded by colonels and lieutenant-colonels, and all of them have a proportionate complement of technical officers.—*Ordem do Exercito.*

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RUSSIA.—There are several changes in the new Russian regulations for the attack. In deploying for battle, one to three sections of the company may be extended at the discretion of the commander, but one section at least must always be held in reserve. The fighting front of the company, which was fixed by the old regulations at 180 metres, has been reduced to 140 in order that the strength of the firing line may be proportionately increased. Whenever more than two sections are extended, the line will be commanded by the captain in person, in other cases by the senior section leader, and the supports are to preserve such a distance in rear of the centre or flank of the firing line as will enable them at any moment to give it prompt support. The safety of the flanks of the company is to be assured by "fighting patrols," and the firing line may be reinforced either by the supports prolonging it to a flank, or by filling up intervals between files. In the latter case advantage is to be taken of the first opportunity to reform the sections which have been mixed up. The fire of the line may be delivered either by volleys or independently, and magazine fire, when used, is to be delivered as rapidly as possible. Independent firing may be used against all objects up to 350 metres, and against groups up to 700, while fire may be opened on larger bodies at still longer ranges. No such restrictions as to distance are imposed by the new regulations in the case of volley firing by sections. As a general rule, firing when in motion is forbidden, but is permitted when a charge with the bayonet is made from some distance, or in the case of a shooting line retiring before the enemy.

The firing line is only allowed to advance at a run when traversing ground heavily swept by fire, or for the purpose of more quickly seizing favourable firing positions. In such cases the pace of the supports is to conform to that of the line they are supporting. A bayonet charge may be made by the firing line alone when the charge is likely to be successful, but as a rule will be made by firing line and supports combined, the troops moving forward quickly behind their section leaders, and when arrived at fifty paces from the enemy, rushing on him with a cheer. After a successful charge, the shooting line opens fire on the retreating enemy, and the supports reform and await further orders.

The changes which have already been discussed, in the formation of the Russian Army, took effect at the beginning of this year. The former reserve brigades, 42, 45, 46, and 47, have become complete field divisions, but with other numbers. Two new army corps have been formed (No. 20 in the military district of Wilna, and No. 21 in that of Kieff) each consisting of two infantry divisions. The above-mentioned field divisions are numbered 42, 43, 44, and 45, and their artillery brigades and parks have received the same numbers.

In September, 1897, the extent of Russian railways was 39,579 versts, of which 7,654 versts were double lines. The State railways were 23,697 versts in length, of which 6,252 versts were double lines. Under the Ministry of Communications, the construction of lengths amounting to 11,566 versts has been undertaken.—*Militär-Wochenblatt.*

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It has been the rule to promote lieutenants and second captains simply in their own corps. This has caused much inequality in the seniority of officers in the Army at large. An attempt has now been made to remedy this by transferring

the oldest officers to other corps in which vacancies exist for officers of the next higher rank. It has not, however, proved satisfactory, as it occasions unwelcome changes and much extra expense. There is a probability that, in future, promotions from the above-mentioned ranks will be carried out within the limits of the respective military governments.—*Revue du Cercle Militaire.*

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The alterations recently made in the field artillery exercises have necessitated alterations in the drill-book. The principal feature of the new instructions is that everything not required in real operations of war is systematically suppressed. The most important modifications are the following:—An under-officer, as captain of the gun, is added to the gun detachment in order to superintend the practice; to insure the greatest rapidity the numbers for laying and loading are placed on opposite sides of the gun; laying the gun and fixing fuses are each entrusted to an individual member who is responsible for the duty; to prevent premature firing, the number that closes the breech attends to the vent, and fires. A special chapter is set apart for pace, which, as a rule, has been increased, the gallop being adopted for the field artillery, and cavalry paces for the horse artillery.—*Revue d'Artillerie.*

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Some time ago a military correspondent recorded, in the *Avenir Militaire*, his impressions of the Russian Army, in a series of articles, from a French point of view. He says that Russian officers live at their regimental mess, and connected with the mess are library, lecture-room, *salle d'armes*, baths, etc. The home life, the comfort, and the cordial hospitality of the Russian officers astonish strangers whom they entertain, especially French officers, who are always received with marked kindness and consideration, and it must certainly be admitted that the military family is represented in Russian regiments very differently from what it is in French.

Theoretical instruction in musketry has been receiving increased attention. There is at the camp of Krasnoé Sélo a school of musketry, analogous to that at the camp of Châlons, where men both of the Army and Navy are instructed. The Normal School of Musketry is intended for captains before promotion to the next grade. They study, practically, all questions connected with arms and shooting. The greatest care is taken to teach the troops how to utilise the ground, which is the first essential of modern fire tactics. It may be mentioned, in passing, that all the arms of the Russian infantry have been supplied by the French works of Châtellerault, St. Étienne, and Pateaux.

Although *esprit de corps* exists, and is fostered in the Russian Army, it does not show itself in the same way as in the French Army, where intense feeling and rivalry are apparent in corps manœuvring against each other. The Russian people likewise love the Army, but they do not applaud it as the French do theirs, simply because their disposition is more reserved, more respectful, or, as some might say, less emancipated. The Guards receive the largest share of favour. One cannot but remark the number of decorations worn by officers and men of the Guards. The order of St. George was instituted in 1769 by the Empress Catherine, for services in face of the enemy. It is less freely granted and more eagerly sought after than any other order, the 1st Class never being accorded to any but commanders-in-chief who have brought a war to a glorious termination. It has four classes; the ribbon is alternate orange and black. During the Russo-Turkish war of 1877-78, Skobeleff called forth prodigies of valour from his troops by the mere promise of this distinction. A battery, for example, was in course of construction under an incessant fire from the Turks, it being as important for them to stop the work as for the Russians to complete it. This decoration was promised to the under-officer in charge if he completed the battery by the morning. It was done; and Skobeleff sent it to him immediately in the following note:—"In the Trenches, 31st October, 1877. To Under-officer

Kolokoltzev, for the activity, the energy, and the bravery which he displayed on the 29th and 30th October. A prayer to God and a service to the Tsar are never lost. I congratulate you from the bottom of my heart, and assure you of my highest esteem. Michael Skobeleff." The other principal Russian orders are those of St. Andrew the Apostle, St. Vladimir, St. Alexander Newsky, the White Eagle, St. Anne, and St. Stanislas.

The Grand Duke Vladimir, who commands the St. Petersburg district and the camp of Krasnoé Sélo, encourages all officers, even subalterns, to take the initiative on every proper occasion. This has hitherto not been the fashion, as it was supposed to be incompatible with the discipline of the Russian Army. The Grand Duke has also introduced a plan for the instruction of each of the three arms in the duties of the others. In this way the infantry can supply, in case of need, any required number of fairly-instructed gunners. The Russian Army, as a whole, is however very different from that part of it which is to be seen in St. Petersburg. In the distant regions of the Empire neither the officers nor the methods of instruction come up to the standard of the capital, but the steady discipline of the rank and file makes up for many shortcomings, and will always give the Russian Army a high fighting value. In the twenty-two classes of the population from which soldiers can be drawn, there are 11,752,000 men, of whom about 3,500,000 are soldiers more or less instructed.

Among the celebrated regiments are the Préobrajensky, created by Peter the Great, the Ismailowsky, the Paviovsky—which is called the regiment of attack, and has the time-honoured privilege of marching past with bayonets at the charge—the Viborgsky, of which the Emperor William is titular colonel, and the Irkoutsky, of which the heir-apparent is colonel. In the Guards cavalry, the magnificent regiments named after the Emperor and Empress deserve special notice. The Emperor's Cuirassiers are all mounted on chestnuts, and the Empress's Hussars on white horses.

Religious sentiment and motive enter largely into the education of the Russian soldier. Each regiment has its own house of worship, and frequently, when moving from place to place, is accompanied by its own wooden church. The fête-day of each regiment is also, without exception, the occasion of a religious service. The officers treat the men in a fatherly way, and the demeanour of the soldiers toward the officers is a combination of deference and familiarity. The difference in rank does not prevent strong sympathy from permeating the Army from the highest grade to the lowest. On great occasions, when this feeling is unusually called forth, the reserve of the men gives way to an outburst of enthusiasm; for instance, when the Russian Army had performed the feat of crossing the Balkans, in spite of a formidable enemy and the almost insupportable intensity of the cold, and had formed up facing Chenovo, Skobeleff galloped towards the line, calling out at the top of his stentorian voice, "In the name of the Fatherland, in the name of the Emperor, thank you, my little brothers." Words cannot describe the effect produced. Every cap flew high into the air, and the welkin rang with the shouts of the soldiers. The reciprocal good-feeling of officers and men has much to do with the discipline of the Russian Army.

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SWITZERLAND.—A winter march was performed in January by two batteries under adverse conditions as to roads and weather, which tested the powers of men and horses. The batteries were mobilised on the 19th and commenced their march on the 22nd. The horses having been collected and brought in, had to be prepared for the march by rough-shoeing. This was done by fifteen smiths, who shod 201 horses in 14½ hours; that is to say, it took about an hour and five minutes to shoe each horse. In 13 marching days, 35 shoes were lost by a hundred horses in covering a distance of about 350 kilometres. It is said, that had the shoeing of the horses been entrusted to civilian smiths, it would have

taken too long for mobilisation purposes, and that, therefore, the ordinary smiths should receive training in military work. The batteries had three days' artillery practice and a day of tactical exercise before finishing their march on the 7th of February.—*Militär-Wochenblatt.*

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UNITED STATES.—The Bill for the re-organisation of the Army, which Chairman Hull, of the House Military Committee, suggests as a substitute for the Lamont Bill, contemplates the skeletonisation of the cavalry by 2,040 men, and artillery by 1,050 men. The infantry is re-organised so that there shall be fifteen regiments with three battalions each, and ten regiments with two battalions each, or a total of 65 battalions. The cavalry will be skeletonised, but will retain its present organisation of ten regiments. Each regiment will have eight troops. There is no intention to injure the cavalry officers in any way, and they will be provided for by assignment to the infantry and artillery. The number of officers taken from the cavalry will be 10 majors, 40 captains, 40 first lieutenants, and 40 second lieutenants.

As a result of the adoption of the proposed plan, it is asserted that there would be two lieutenant-colonels promoted to be colonels; four majors to be lieutenant-colonels; 36 captains to be majors; and 34 first lieutenants to be made captains, with a corresponding promotion for the second lieutenants. It is said that but 11 first lieutenants and 28 second lieutenants would be unprovided for by the proposed plan, and these officers it is proposed to place on detached duty in connection with colleges, etc. If Mr. Hull's scheme goes through, then but few officers on the active list will be assigned to detached duty, it being proposed to assign additional officers and retired officers to work of this character.

Mr. Hull's plan will reduce the appropriations for the Army by $133,000. The increased rank given to officers, as a result of the proposed re-organisation, will require an increased appropriation of $36,000, and an increase of $35,000 will also be required for the enlisted men. Twenty-three thousand dollars will be required for forage for horses for officers. The total increase will thus be $94,000. The decrease in appropriations will result from a reduction in the quantity of forage for cavalry horses and animals of cavalry officers amounting to $227,000.—*U.S. Army and Navy Journal.*

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An authorised new manual of Physical Drill for the United States Army has been published by Lieutenant E. L. Butts, 21st Infantry, who was for some time in charge of the physical training of recruits at Columbus Barracks, Ohio. The division of the manual falls into three parts: The first includes calisthenics and exercises without apparatus, or with such simple equipment as the dumb-bell, Indian club, bar-bell and rifle; the second deals with more difficult exercises with the horizontal and parallel bars and all the other gymnastic paraphernalia; and the third is an interesting chapter on athletic games and contests. The book contains some well-executed illustrations in half-tone, reproduced from instantaneous photographs, to supply details of movements and positions. It is published by D. Appleton and Co., New York.

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A new pattern sword has been approved for artillery officers of the United States Army, by General Order No. 69, dated 10th December, 1897. The sword resembles in shape the sabres carried by the Light Dragoons of the British Army during the Peninsular War, and for some time afterwards. It is curved, and the hilt is of the old pattern. The sabre has heavy gold-plated guard and scabbard mounts, nickel-plated, steel or German silver scabbard, and nickel-plated Solingen blades. The sword is much cheaper than that used in the British Army, costing not more than £2.

# NAVAL AND MILITARY CALENDAR.

## FEBRUARY, 1898.

2nd (W.) Her Majesty reviewed the ship's company of "St. George" at Osborne.

4th (F.) Colonel Manning and troops of Central Africa Protectorate established at Mpesenis after a complete victory.

6th (S.) Beria, on the Kyoma-Carnotville main route, West Africa, occupied by a British Hausa Guard.

,, ,, H.M.S. "Barfleur" left Malta for China.

8th (T.) 5th Lancers left Bombay for Natal in the Indian transport "Clive."

9th (W.) Order of French officer and party of Senegalese Hausas to haul down British flag at Beria refused.

11th (F.) Vice-Admiral Sir E. H. Seymour took over command of China Squadron at Chusan.

,, ,, H.M.S. "Philomel" arrived at Plymouth from West Coast of Africa.

12th (Sat.) 2nd Bn. Middlesex Regiment arrived in England in the "Dilwara."

,, ,, H.M.S. "Victorious" left Malta for China.

,, ,, Launch at Stettin, from the Vulcan Works, of the second-class cruiser "Haï-Shen" for the Chinese Government.

13th (S.) 2nd Bn. Royal Berkshire Regiment left England in the "Avoca" for South Africa.

,, ,, H.M.S. "Sirius" arrived at Plymouth from Malta with relieved crews of "Hebe" and "Surprise."

,, ,, H.M.S. "Racoon" left Sheerness for East Indies.

14th (M.) H.M.S. "Victorious" grounded off Port Said.

15th (T.) News received of rising of Angoni Zulus in Nyassaland.

,, ,, Explosion on board United States cruiser "Maine" in Havana Harbour; 253 men and two officers killed and missing.

,, ,, H.M.S. "Thetis" commissioned at Chatham for Mediterranean.

18th (F.) H.M.S. "Victorious" refloated.

,, ,, H.M.S. "Buzzard" paid off at Sheerness.

,, ,, H.M.S. "St. George" paid off at Portsmouth.

,, ,, Publication in *London Gazette* of Sir R. Martin's Report on recent operations in Mashonaland.

19th (Sat.) Army Estimates for 1898-99 issued.

23rd (W.) News received of victory of Major Macdonald's forces over Mwanga in Central Africa.

25th (F.) 400 men of 4th Bombay Light Infantry left Bombay for Mombasa in the troop-ship "Dalhousie."

,, ,, H.M.S. "Cæsar" left Portsmouth to join Channel Squadron.

28th (M.) H.M.S. "Philomel" paid off at Devonport.

# FOREIGN PERIODICALS.

## NAVAL.

ARGENTINE REPUBLIC.—*Boletín del Centro Naval.* Buenos-Aires: December, 1897.—Has not yet been received.

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AUSTRIA-HUNGARY.—*Mittheilungen aus dem Gebiete des Seewesens.* No. 3. Pola and Vienna: March, 1898.—"Captain May's Notes on Tactics for Ships and Weapons of the Present Day" (*translated*). "Naval Estimates for the Imperial Navy for the Year 1898." "The French Ship-building Programme." "The New United States Battle-Ships." "Naval Notes." "Explosion of a Steel Shell." "The Strength in Chinese Waters of the different Foreign Squadrons."

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BRAZIL.—*Revista Maritima Brazileira.* Rio de Janeiro: October to December, 1897.—"The Organisation of the Brazilian Navy." "Lectures on Practical Hydrography" (*concluded*). "The Battle of the Yalu."

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FRANCE.—*Revue Maritime.* Paris: January, 1898.—"Control of the Waste of Power in Engines." "Study on the Hemp and Flax used in the manufacture of Sails in the Navy." "Essay on Phonetic Signals for Lessening the Frequency of Collisions in Fogs." "New Electric Engine-Room Telegraph for the Bridge." "Employment of Torpedo-boats." "Torpedo-boat Stations and Private Signals." "Trials of Armour Plates." "Attack on Armour Plates by Armour-piercing Projectiles." "The Right of Search and its Application in Time of Peace." "How the English Fleet was Illuminated at Spithead." "The Sea Fisheries."

*Le Yacht.* Paris: 5th February, 1898.—"The Navy in Parliament." "Yachting Notes." "Marine Boilers." 12th February.—"The Formulas of Displacement and the Monotypes." "Yachting Notes." "The Navy in Parliament." "Technical Maritime Association: Study on Vaporisation in Boilers." "Tide Signals on the Coast of France." 19th February.—"Promotion in the Navy." "Yachting Notes." "How Ought we to Pronounce the Words 'Yachting' and 'Yachtsman'?" 26th February.—"The Coast Defences." "Yachting Notes." "The American Monotype Schooners."

*Le Moniteur de la Flotte.* Paris: 5th February, 1898.—"The Hourst Mission." "The Naval Estimates: Discussion in Parliament." 12th February.—"Why Have we a Navy?" "The Naval Estimates: Discussion in Parliament." "The Fisheries and Ostriculture." "Colonial Notes." 19th February.—"Promotion." "The Navy in Parliament." "The Loss of Torpedo-boat '133.'" "The Défense-Mobile at Corsica." 26th February.—"The Cost of War Navies." "The Shipwreck of the 'Flachat.'" "French and English in Africa." "Colonial Notes."

*La Marine Française.* Paris: 15th February, 1898.—"England's Naval Policy and Strategy." "The Defence of the Coasts and Victualling of the Entrenched Camp at Paris." "War and the Navy." "The Crisis in the Merchant Navy."

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GERMANY.—*Marine Rundschau.* Berlin: March, 1898.—"Strong Lights on the Mediterranean." "Contributions to Nautical Astronomy." "Electrical Steering Apparatus." "Proof of Metals for Tensile Strength and Expansion." "Trials of fourth-class battle-ship 'Ægir.'" "Kiao Chau." "The Occupation of Tchingtan." "The Former German Fleet and the Grand Duchy of Oldenburg" (*continued*).

ITALY.—*Rivista Marittima.* Rome: February, 1898.—"12th January, 1848 (The Revolution of Palermo); Notes by a Continental." "The Whitehead Torpedo—Notes on its speed, range of action, and destructive efficiency." "The Battle of Lepanto, in Art, Poetry, and History." "Mahan and Callwell" (*conclusion*). "Scrutiny Service at Sea." "The Italians at the Conquest of the 'Diamond Rock.'" "Naval Recruiting." Letters to the Director:—"On the Adoption of Stockless Anchors on Ships of War"; "Mahan and Callwell"; "Marine Anthology"; 'New Evaporators," etc. "Naval Notes, Home and Foreign." "Notices of Books." Plates—"Almirante Zenteno," Chilian cruiser; "Harald Haarfagre," Norwegian battle-ship.

PORTUGAL.—*Revista Portugueza, Colonial e Maritima.* Lisbon: February, 1898.—"European Rivals in the Extreme East." "Colonial Agriculture." "Rate of Acceleration in the Passage to the Colonies." "Colonial Notes." "The Island of St. Thomas." "The New Cruiser 'Rainha D. Amelia.'" "Tunny Fishing." "Naval Notes."

SPAIN.—*Revista General de Marina.* Madrid: February, 1898.—"Geographical, Medical, and Social Study of the Island of Balabac." "The Entrance and Military Instruction of Aspirants for the Marine Guards and Cadets." "Mechanical Torpedoes" (*continued*). "Parasol Boats." "A Chapter of Naval Strategy." "The Extreme East." "Progress in Naval War Material in England during 1897." "The Entrance into the Navy." "Reflecting Instruments and the Determining the Altitude of Clouds." "Conclusion of the Vocabulary of Powders and Explosives."

UNITED STATES.—*Proceedings of the United States Naval Institute.* Annapolis: No. 4, 1897.—"Homing Pigeons as Messengers of the Fleet." "Pyro-Collodion Smokeless Powder." "Notes on the Obry Device for Torpedoes." "Search Curves." "Naval War College." "Mechanism of Modern Naval War." "Notes on the Literature of Explosives." Discussions:—"Consolidated Mess of the 'Indiana.'" "Use of Aluminum in Naval Construction.' "Naval Notes."

## MILITARY.

AUSTRIA-HUNGARY.—*Militär-Zeitung.* Vienna: 6th February, 1898.—"Army and Press." "The Museum of Artillery in Paris." "A Winter March of the Swiss Artillery." 14th February.—"On the Employment of Reserve Officers." "Staff Officers' Examination for the General Staff." "Horse and Cycle." 22nd February.—"Under-Officer and Military Pupil." "Horse and Cycle" (*concluded*).

*Mittheilungen über Gegenstände des Artillerie- und Genie-Wesens.* Vienna: February, 1898.—"The House Fungus and its Repression." "Calculation of Ballistic Co-efficients in High-Angle Flight." "On Calculating Machines."

*Organ der Militär-wissenschaftlichen Vereine.* Vienna: February, 1898.—"The Present Infantry Exercises in Foreign Armies, with special reference to those of Russia." "Ballooning in the Naval Service."

FRANCE.—*Revue du Cercle Militaire.* Paris: 5th February, 1898.—"The Service of Security in War" (*concluded*). "The Combat." "Under-Officers and Soldiers of France." 12th February.—"Attack on the Transport and Supply of an Army Corps by Cavalry during a Battle." 19th February.—"Attack on the Transport and Supply of an Army Corps by Cavalry during a Battle" (*continued*). "Examinations for Admission to the Superior School of War." 26th February.—"Attack on the Transport and Supply of an Army Corps by Cavalry during a Battle" (*continued*). "The Combat" (*continued*).

*Le Spectateur Militaire.* Paris: February, 1898.—"Surprises in the War of 1870-71" (*continued*). "Guerilla Warfare and the Commissariat Service" (*continued*). "The Order Book of an Infantry Regiment in 1781" (*continued*). "Captain La Tour d'Auvergne, First Grenadier of the Republic" (*continued*).

*Revue de Cavalerie.* Paris: February, 1898.—"Manœuvres of Two Cavalry Divisions and an Army Corps." "The 3rd African Chasseurs in Mexico." "Notes on the Training of the War Horse" (*concluded*). "The German Imperial Manœuvres" (*concluded*). "Gallops for half-bred Horses." "How to Sell a Horse."

*Revue d'Artillerie.* Paris: February, 1898.—"Reflections on the Duties of Infantry Supports when employed to protect Artillery." "Study on the Methods of Harnessing and Draught in the Field Artillery Carriages of the principal European Armies." "Field Material of the 75-millimetre Q.F. Maxim-Nordenfeldt." "Note on the Wireless Telegraphy."

*Journal des Sciences Militaires.* Paris: February, 1898.—"Defence of the General Principles of Plans of Campaign." "The Navy and the National Defence." "A Tactical Study of a Specific Case" (*concluded*). "Preparation of the Company for Combat."

*Revue Militaire de l'Étranger.* Paris: February, 1898.—"The Turco-Greek War of 1897" (*continued*). "The German Imperial Manœuvres in 1898" (*concluded*). "The Present Organisation of the Cossacks" (*continued*).

*Revue du Genie Militaire.* Paris: February, 1898.—"A New Method of Making Foundations in Bad Ground, by Mechanical Compression of the Soil." "Note on the Electric Lighting of Verdun." "Armoured Cupolas for the Fort of Waelhem, Antwerp."

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GERMANY.—*Militär-Wochenblatt.* Berlin: 2nd February, 1898.—"Some Remarks on the Articles 'Tactical Principles of the Present Day' and 'Bankruptcy.'" "An Answer to the Essay 'How many Guns do we Require?'" 5th February.—"A Swiss Artillery Winter March." 9th February.—"A Review of the Events of the War in Thessaly" (*continued*). "Should there be Artillery in the Advanced Guard of a Single Infantry Division on the March?" 12th February.—"Saxon Army List for 1898." "A Review of the Events of the War in Thessaly" (*continued*). "Italian Army Organisation." 16th February.—"On Strategy." "On the Battle-fire of the French Infantry." "The New Formations in the Russian Army." 19th February.—"A Review of the Events of the War in Thessaly" (*continued*). "The Science of War." "An Account of the Manœuvres in Ireland." "On the Giving of Orders in the German Manœuvres." "The Experimental Mobilisation of the Italian Fleet and Coast Defence Troops. 23rd February.—"A Review of the Events of the War in Thessaly" (*continued*). "The Drills of the English Volunteers at Aldershot." "Austro-Hungarian Historical March Tunes." 26th February.—"A Review of the Events of the War in Thessaly" (*concluded*). "Inoculation as a Remedy for Pneumonia in Horses." "Naval Matters, Old and New." "The Yearly Statement of the United States War Minister."

*Deutsche Heeres-Zeitung.* Berlin: 2nd February, 1898.—"The Evacuation of Orleans and the New Army of the Loire" (*concluded*). "Memoirs of Adjutant-General Prince Kraft zu Hohenlohe-Ingelfingen." 5th February.—"Memoirs of Adjutant-General Prince Kraft zu Hohenlohe-Ingelfingen" (*concluded*). "Horse and Cycle" (*continued.*) 9th February.—"Horse and Cycle" (*concluded*). "Modern Small-Arms and Musketry." 12th February.—"Our Horses." "Russian Military Affairs as they are and as they ought to be." 16th February.—"Modern-Small Arms and Musketry" (*concluded*). "Our Horses" (*concluded*). "Russian Military Affairs as they are and as they ought to be" (*continued*). 19th February.—"The Story of the German Command at the Battle

of Spichern." 23rd February.—"The Bases of Expert Knowledge of Steel and Iron for Military Purposes." 26th February.—"The Influence of Ballooning in the Wars of the Future." "The Bases of Expert Knowledge of Steel and Iron for Military Purposes" (*concluded*).

*Jahrbücher für die deutsche Armee und Marine.* Berlin: February, 1898.—"The Battle of Bautzen from a Commander's Point of View." "Extracts from the Notebook of Staff-Surgeon Kretschmar in the Campaigns in the Tyrol, 1809, and in Spain, 1810" (*continued*). "A New Science of War." "The New Regulations for the German Field Artillery." "The Question of Infantry Attack." "The Naval Question in Germany." "War Dogs, their Training and Use in the Army."

*Neue Militärische Blätter.* Berlin: February, 1898.—"The Real Meaning of Independent Command in War" (*continued*). "The Royal French Army in 1789." "The Military Effect of Sea Power in East Asia." "Defence and Publicity in the German Military Penal Procedure."

*Internationale Revue über die gesammten Armeen und Flotten.* Dresden: February, 1898.—"The Development of Musketry in the German Infantry from 1884 to 1897." "England and Germany from a Maritime Point of View." "The Eastern Frontier of France." "French Colonial Possessions in Africa." "The Study of Oriental Languages in the Russian Army."

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ITALY.—*Rivista di Artiglieria e Genio.* Rome: February, 1898.—"Complementary Parameters in Rational Ballistics." "War Observatories Constructed of Bridge Materials." "A Method of Obviating some Imperfections in Coast Defence Fire." "Corps Artillery Distributed between the Divisions." "An Articulated Aiming Support for the Infantry Training School (Russia)." "The Regulation of the Engineer Corps in the Russian Army." Miscellaneous:—"Schneider, Thronsen, and Nordenfeldt Quick-Firing Campaigning Material." "A Cannon without Detonation, Flame, or Recoil." "Rapid Bridge Construction in America." "Expansive Apparatus for Projectiles." "Division of Angles into Equal Parts, etc." "Army Notes, Home and Foreign." "Notices of Books," etc.

*Rivista Militare Italiana.* Rome: 1st February, 1898.—"Some Considerations on the Servo-Bulgarian War of 1885." "Military Cycling at the end of 1897" (*continued*). "Cavalry in 1897" (*continued*). "New Books." "Political-Military Notes." "Foreign Military Notes."

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SPAIN.—*Memorial de Ingenieros del Ejército* Madrid: February, 1898.—Has not yet been received.

*Revista Técnica de Infantería y Caballería.* Madrid: 1st February, 1898.—"Employment of Cavalry in Masses." "Documents on the History of our Rule in Cuba" (*concluded*). "The Military Monteplo Society." "The Gulf of Mexico and the Sea of the Antilles." "José Villalba and his Tactical Studies." "The Cuban Insurrection." 15th February.—"On the Cuban Horse and Horse Breeding in Cuba." "On the Feeding of the Infantry Soldier." "On the Problem of Cuba: Whites and Negroes."

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SWITZERLAND.—*Revue Militaire Suisse.* Lausanne: February, 1898.—"Field Material of the 75-millimetre Q.F. Bange and Piffard." "The Manœuvres of the 2nd Army Corps in 1897." "The Measurement of Distances in Batteries of Position."

# NOTICES OF BOOKS.

*Letters on Strategy.* By PRINCE KRAFT ZU HOHENLOHE-INGELFINGEN. Forming 2nd Volume of the Wolseley Series. 2 Vols. 8vo. London, 1898.

The second issue of the Wolseley Series, "Kraft's Letters on Strategy," will commend itself to a far wider circle of readers than did its predecessor, "With the Royal Head Quarters," by Verdy du Vernois. The latter dealt with the working of one branch of leading in one campaign; the former takes in hand a very large matter, and follows it in its ramifications through three campaigns. Any interest in the first was of the "local" character. The interest in the second is far more general. Although the work has been published more than ten years, and has been translated into French, its appearance now in the Wolseley Series is the first chance readers of English only have had of perusing it. But, of course, it is quite possible that the mere appearance of the word "Strategy" in the title may deter many officers who do not aspire to become Napoleons from even glancing at its contents. They may rest assured that a perusal of the "Letters" will almost hypnotise them into a condition of mind, in which while they will learn very much about the most interesting facts of real war, they will at the same time imbibe some valuable information as to what strategy is, but almost without being aware that they are assimilating into their system what hitherto they had found to be bread of the driest character. Taking the campaigns of 1806, 1859, and 1870, Kraft clothes the skeletons with flesh and blood. He vivifies strategy. He gives us, it is true, the strategy of the study, but he shows us at the same time how men like ourselves act in the field in transmuting the thoughts and ideas of the study into action. The "Letters" of which the war of 1870-1 is the subject, are of special value in bringing to notice the difficulties, physical and moral, met with and to be overcome in modern war; and they possess also the weight due to the fact that the writer himself occupied an important position on the staff by which that campaign was worked. Of the real use, even to a captain or a subaltern, of a perusal of "Letters on Strategy" there cannot be the slightest doubt, for, from time to time, the Prince interpolates most instructive remarks on the carrying out some of the most ordinary details of campaigning.

But the main purpose of these Notices of Books is to furnish the members of the Institution with expert opinions on the works reviewed; consequently, when the subject of the notice is a translation, the reviewer is bound to add to his estimate of the value of the original work an estimate of the value of the translation. And with regard to the "Letters on Strategy," we are regretfully compelled to say that as a translation they are quite unworthy of the name of the well-known editor, and of the Wolseley Series of which they form a part. The "Letters" are a most extraordinary mixture of satisfactory and unsatisfactory work, both in translating and in editing. There are plenty of pages which will bear close scrutiny; but there are others which destroy all

confidence in the "Letters," either as a reliable contribution to military history, or as a correct exposition of Prince Kraft's views. In the Introductory Chapter, the editor, without any warning to the reader, has used the pruning knife in a wholesale manner, and has excised numerous passages, including Kraft's most important statement that he employs only campaigns of the 19th century for his exposition of strategy, because he regards those of earlier centuries out of date for his instructional purposes, "durch den Unterschied der Waffen, Heeres-Organisation und der Verpflegungs-Art so weit von der gegenwärtigen Strategie." The translator, whose name, however, does not appear on the title page, indulges in renderings of the freest kind, and lapses from time to time into inaccuracy and even mistranslation; and these seem to have escaped the supervision of the editor. We venture to suggest to the editor that he should compare the 30th Letter, "The Thirtieth August—Beaumont," with the original 30th Brief. He will find the translation so untrustworthy that Prince Kraft would turn in his grave at the idea of being credited with the authorship of the "Letter." When at p. 247, Vol. II., in this Letter, the translator substitutes the 1st Bavarian Corps for the 1st French Corps, he makes the Prince appear to have written balderdash; but this is only one among many shortcomings in the 30th Letter. This particular Letter is not given as a specimen of the work as a whole, but as an illustration of the unsatisfactory portion of it. Again, in studying in the First Volume, the 1859 Campaign, we come at p. 150 across the following sentence:—"The Master-General-of-Ordnance announced to the corps in a general order the object of their various stations." Since up to the point where this passage occurs the Austrian leader has been spoken of by either his own name, Gyulai, or by the title Commander-in-Chief, this rendering of the "Feldzeugmeister" of the original cannot fail to give to the English reader the impression that the issuer of the orders is some high staff officer, who makes his appearance here for the first time. Why adopt in one isolated instance a special rendering of a title which usually means something else? No English reader is likely to identify this "Master-General" with the Gyulai of the preceding page. And it may also fairly be questioned whether "seiner Austellung" means "their various stations," except in the opinion of a very free and inaccurate translator. The indiscriminate application of the word "Kommands" in this campaign to persons and to Head Quarters is also wrong.

But the "Letters," with all their faults, are well worth reading; though not until a second edition, thoroughly revised, is issued, shall we have before us the "Briefe" of Prince Kraft.

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*The Liverpool Privateers and the Liverpool Slave Trade.* By GOMER WILLIAMS. London: William Heinemann, 1897.

It is undoubtedly true that two of the main sources of Liverpool's growth to its present maritime greatness were privateering and slave trading, and in for the first time accurately tracing out the connection of the great port with these two pursuits Mr. Gomer Williams has undertaken a task of laborious and exhaustive research, which he has carried out in the most admirable manner. It was in 1536 that a Liverpool privateer, fitted out by a son of the then Earl of Derby, first brought a prize into the river Mersey "with much rejoicing." From that day up till now, when many of our mightiest battle-ships first enter their native element on its broad waters, the Mersey has always been closely connected with the growth and development of our sea power. Liverpool was young in the grand old Elizabethan times, and was not able to add much to the fleet of merchantmen that joined the twenty ships of the Royal Navy and aided in annihilating the "invincible" Armada, but it was a Liverpool shipowner and captain, Master Humfraye Brooke, who was able to render enormous service to

his country by bringing to England the first intelligence of the Armada being at sea. What the importance of the privateer was to Liverpool is sufficiently evidenced by the fact that, in 1799, the port sent out a fleet of 120 privateers, aggregating in displacement 31,385 tons, carrying as armament 1,986 guns, and employing close on 9,000 men. What this meant to the port in every branch of trade can be easily imagined. What it meant in damage to an enemy's commerce is well evidenced in the story of Captain Fortunatus Wright, one of the greatest Liverpool captains of privateers, "who, having done the French much damage during the last war, had been marked out by the French king, who promised the honour of knighthood, a pension of 3,000 livres per annum for life, and command of a ship of war to whoever should bring him into France alive or dead. The merchants of Marseilles had also promised a reward, double the value of Wright's vessel, in a writing pasted up on their Exchange." Interesting, however, as is the history of Liverpool privateering to the general reader, perhaps that portion of the book which deals with the slave trade will exercise the greater charm. For there is a weird fascination about the unholy trade in which we once, individually, took such an active part, and which we are now, as a nation, so assiduous in suppressing. The profits of the iniquitous traffic were simply enormous. During the eleven years from 1783-93, the 878 slave-ships belonging to Liverpool imported to the West Indies 303,737 slaves, of an estimated sterling value of £15,186,850. After expenses paid, the net profits remitted to Liverpool amounted to £12,294,116, so that the annual profit accruing to the port was no less than £1,117,647. Here again are the profits on six voyages:—The "Lottery," sailing with 453 slaves, returned £12,091 16s. 1d. net profit; and in another voyage, with 305 slaves, £19,021 19s. 0½d.; the "Enterprise," with 392 slaves, cleared £24,430 8s. 11d.; the "Fortune," with 343 slaves, £9,487 10s. 3d.; the "Louisa," with 326 slaves, £19,133 10s. 5d.; and the "Bloom," with 307 slaves, £8,123 7s. 2d. In short, on these six voyages, 2,126 slaves were carried, and this human cargo brought in a net profit of £99,288 4s. 10½d., the average profit on each slave when sold being £43 8s. 3d. In was then in truth no wonder that the trade throve and received powerful support and patronage. We read that "on the 14th of November, 1799, the Recorder and a Committee of the Council" presented H.R.H. the Duke of Clarence with the freedom of the borough in a gold box, and an illuminated address, "in grateful sense of his active and able exertions in Parliament" on behalf of the slave trade. Not a very expensive outlay on the part of the borough, as the whole cost of the deputation, together with present, about ran to the price of two or three "prime and healthy negroes." In the House of Commons the borough members, Gascoyne and Lord Penrhyn, fought steadily against the resolutions condemning the trade, and at the elections a Silas Wegg amongst their supporters, dropping, as was natural, into poetry, declared—

> "If our slave trade had gone, there's an end to our lives,
> Beggars all we must be, our children and wives;
> No ships from our ports their proud sails e'er would spread,
> And our streets grown with grass, where the cows might be fed."

A clerical champion for the cause was not difficult to find, in the person of the Rev. Raymond Harris, who issued a pamphlet entitled "Scriptural Researches on the Licitness of the Slave Trade, showing its conformity with the principles of Natural and Revealed Religion, delineated in the sacred writings of the Word of God," which "astounding vindication of man-stealing so delighted the Corporation that they presented the reverend sophist with a gratuity of £100." Enough has been said to show the intense interest of Mr. Gomer Williams' book. Every page of it gives evidence of the patience and enthusiasm with which the author has engaged on his arduous work, and he is to be heartily congratulated, for the result is a book that will be read with pleasure from cover to cover.

*The Officers' Memorandum Book for Peace and War.* By General Sir R. HARRISON, K.C.B., C.M.G., R.E., Qr.-Mr.-General to the Forces. London: Simpkin, Marshall & Co., 1897.

The first edition of this useful little book was published twenty-two years ago. It contains a mass of information certain to be required by officers on active service and in peace manœuvres; the notes are short, and the book is portable. On such occasions, where there is no time for study, staff officers and regimental officers will find such an *aide-mémoire* upon military subjects almost a necessity. The late Major-General Sir Herbert Stewart said that he never went anywhere without it, and that it was of the greatest use to him; Captain Stairs, R.E., remarked that "it had been across Africa with him, and he wished to keep it among his relics of Mr. Stanley's Expedition"; and it has been strongly recommended by many distinguished officers, including the Commander-in-Chief. If any further proof of its usefulness be required, it will be found in the fact of a fifth edition having been called for.

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*Naval and Military Funds and Institutions.* By Colonel J. GILDEA, C.B., 4th Bn. Royal Warwickshire Regiment. London: Eyre and Spottiswoode, 1898.

This is the third edition of a useful guide to the various Charitable Institutions connected with the Services.

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*La Jeunesse de Napoléon: Brienne.* By ARTHUR CHUQUET. 8vo. Paris, 1897.

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*Lettres Inédites de Napoléon Ier.* By LÉON LECESTRE. Two vols. 8vo. Paris, 1897.

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*Stratégie Napoléonienne: Maximes de Guerre de Napoléon Ier.* By A. G. 8vo. Paris, 1898.

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*Ausgewählte Schriften des Erzherzogs Karl von Oesterreich.* By the Archdukes CHARLES and WILLIAM of Austria. Six vols., with two vols. Maps. 8vo. Vienna, 1893-1894.

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*Le Général Bourbaki.* By Le Commandant GRANDIN. 8vo. Paris, 1898.

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*Une Sœur du Grand Frédéric, Louise-Ulrique Reine de Suède.* By O. G. DE HEIDENSTAM. 8vo. Paris, 1897.

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*Le Génie à Madagascar, 1895-96.* By Chef de Bataillon E. LEGRAND-GIRARDE. 8vo. Paris, 1898.

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*Aus den Grossen Kurfürsten letzen Jahren.* By Dr. HANS PRUTZ. 8vo. Berlin, 1897

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*Les Français aux Colonies.* By Le Commandant SARZEAU. 8vo. Paris, 1897.

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